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AUTHOR	Stephens, W. M.; And Others
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ABSTRACT

In connection with the formative evaluation of the Developing Mathematical Processes (DMP) curriculum, interviews were conducted with teachers in grades 1-3 at the beginning of the school year and after concluding each of the 10 topics on addition and subtraction. The topics had been especially prepared for a classroom observational study. The topic interviews were conducted while the study was in progress, and were intended to ascertain the degree of importance teachers gave to a particular topic, as well as to impart information about how they planned instruction and about their classroom strategies. This report presents the responses of each teacher to each question, typed from the tape-recorded interviews. (MNS)

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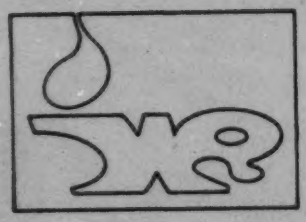

Program Report 83-9

Topic Interviews Accompanying Classroom Observational Study of DMP, 1979-81

by W. M. Stephens, T. A. Romberg, A. E. Buchanan, and M. N. Romberg

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November 1982

Wisconsin Center for Education Research
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by

W. M. Stephens, T. A. Romberg,
A. E. Buchanan, and M. N. Romberg

Report from the Program on
Student Diversity and Classroom Processes

Wisconsin Center for Education Research
The University of Wisconsin
Madison, Wisconsin

November 1982

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- diversity as a key issue in relations between individuals and institutions, through studies of school processes
- diversity as a fundamental question in American social thought, through studies of social policy related to education

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INTRODUCTION

During the classroom observational study (Romberg, Small, & Carnahan, 1979), interviews were conducted with teachers both at the beginning of the school year and at the end of each of the ten topics on addition and subtraction (Kouba & Moser, 1979, 1980). The purpose of this paper is to document those interviews.

The topics had been especially prepared for the classroom observational study and had been written in the same pedagogical style as DMP (Romberg, Harvey, Moser, & Montgomery, 1974, 1975, 1976). The distribution of the ten curriculum units over the first three grades is shown in the diagram below:

S1, S2, S3	S4, S5, S6, A1, A2	A3, A4
Grade 1	Grade 2	Grade 3

Topic Interviews

The topic interviews were conducted by staff of the Wisconsin Center for Education Research during the period of the classroom observation study and were intended to ascertain the degree of importance which teachers gave to a particular topic, as well as information about how teachers planned instruction, and about their own classroom strategies. This information was intended to complement the quantitative data obtained from the classroom observational study, and to serve as a form of evaluation of the revised curriculum units. The schedule of available interviews included in this report for each teacher is shown in Table 1.

Table 1

Interviews with Teachers

Grade 1	S1	S2	S3		
Teacher					
G	✓	✓	✓X		
L	✓	✓	X		
H	✓	◯	✓		
E	✓	✓X	✓		
B	✓	✓	◯		
A	✓	✓	✓		
M	✓	◯	✓		
I	✓	✓	✓		
Grade 2	**S4**	**S5**	**S6**	**A1**	**A2**
Teacher					
S	✓	✓	◯	✓	✓
J	✓	✓	✓	✓	✓
T	✓	◯	✓	✓	✓
C	✓	✓	✓	✓	✓
U	✓	✓	✓	✓	X
K	✓	✓	✓	✓	X
Grade 3	**A3**	**A4**			
Teacher					
R	✓	✓			
V	✓	✓			
Q	✓	✓			
P	✓	✓			
O	✓	✓			
N	✓	✓			

✓ complete transcript

X interview notes but tape recorder failed

✓X partial transcript

◯ no interview

*D is a Teacher Aide
F shared teaching with Teacher E

The following questions were used by interviewers during the interviews. The first questions were asked only in the initial interview of each school year. The remaining questions were asked in all interviews. However, interviewers exercised initiative in asking teachers to elaborate further their responses to some questions. On some occasions, interviews were shortened somewhat by time constraints.

Questions Asked in Only the First Interview Each Year

Planning

1. Do you plan alone or with others? With whom?
2. Do you plan day-by-day, activity-by-activity topic-by-topic, or use some other scheme?
3. Do you use resources other than the topic materials? What are they?
4. Are there pupils for whom you plan specially? Which ones?

Instruction

1. How do you decide how to group your students?
2. Does your grouping change? What induces the change?
3. On what basis do you decide whether an activity should be seatwork versus teacher directed?
4. How do you decide how much time to devote to a topic or an activity?
5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

Questions Asked in Each Interview

1. How important do you feel the overall topic is?
2. Which activities in the topic do you feel most useful?
3. Are there activities you consider unclear?

4. Are there activities you consider superfluous?
5. Which activities do you find very complex to teach? Which did you find very simple for you?
6. Which activities did your pupils find easy? Which did they find difficult?
7. Is there material which your pupils should have covered before this topic which they didn't?
8. How did you choose which activities to use?
9. Did you change any of the activities? Why?
10. Did you add any activities? Why?
11. Is there anything else you want to say?

Transcripts

The transcripts of the interviews are presented in chronological order starting at Grade 1 and moving topic by topic through Grade 3.

References

Kouba, V. L., & Moser, J. M. Development and validation of curriculum units related to initial sentence writing. Technical Report No. 522. Madison: Wisconsin Research and Development Center for Individualized Schooling, 1979.

Kouba, V. L., & Moser, J. M. Development and validation of curriculum units related to two-digit addition and subtraction algorithms. Working Paper No. 287. Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Romberg, T. A., Harvey, J. G., Moser, J. M., & Montgomery, M. E. Developing mathematical processes. Chicago: Rand McNally, 1974, 1975, 1976.

Romberg, T. A., Small, M., & Carnahan, R. Research on teaching from a curricular perspective. Theoretical Paper No. 81. Madison: Wisconsin Research and Development Center for Individualized Schooling, 1979.

Topic S-1 Teacher A School X February 15, 1979

PLANNING

1. Do you plan alone or with others? With whom?

I plan by myself. Sometimes Teacher B might confirm notes on certain lessons but it is usually after we've done it. But sometimes if I've done it before she has we talk about it, what may have worked and what may not have worked.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

I make weekly lesson plans, but sometimes they have to be changed because sometimes I have planned too much.

3. Do you use resources wother than the topic materials? What are they?

I use my experience with DMP for certain things that I have changed in certain ways, that I have adjusted the lessons and so, and I have done some things to S-1. "But you don't systematically use materials from another text series or something of that nature?" No.

4. Are there pupils for whom you plan specially? Which ones?

Sometimes when I introduced a lesson, if there is a group of children that really have a lot of trouble, I do an extra lesson, I add a lesson and I work with that in small groups. Now when I did S-1, I didn't really plan for specific children until after I saw some children were having difficulty. "There isn't an LD child or somebody like that?" I have an LD child, but when we did S-1 he didn't do that topic with us. He does math in the LD classroom, and sometimes if it's something that I think, he has no handwriting skills and so that's why it's impossible.

DIRECT INSTRUCTION

1. How do you decide how to group your students? Do you group your students at all?

Not during the math period per so; sometimes I group children at times to do special math activities. During math time we do math lessons together. "Are the students here at School X grouped in any way?" No. "I thought that was ture, but I just wanted you to say that."

2. Does your grouping change?

"Since you don't group, you don't change." No.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

"Do you follow through pretty much what is described in the activities?" No, if I've done a lesson and I see that most of the children understand the activities and there is a similar activity, then I can give that as seatwork, but I don't give that as seatwork unless I am sure that the majority of kids would be able to do it independently without a lot of question asking. "Is part of that a question of whether or not they can read the problems?" Mm-hmm. Definitely. Because there are a lot of the problems in S-1 that I had, you know, half my class probably could have read all the words but then I have those that are just reading in a primer and it was, you know, what is this word, so we did those together, and I had one child read the problem, because otherwise some of them who could do it wouldn't have been able to read it.

4. How do you decide how much time to devote to a topic or an activity?

I plan for math to be about one-half hour but it doesn't, sometimes it's less and sometimes it's more; because sometimes, I'm a pretty good jusge of how long it will take and sometimes I'm way off. There was one day that I thought it would take quite awhile and we were done in 15 minutes. So I plan for about one-half hour and I try, when I make my lesson plans I look over the activity and try to figure about what I can get done in one-half hour. "But you don't have a specific number of minutes you have to teach mathematics?" No. Well, there is a state thing that they fill out, but nobody . . . "But you don't have math always from 1:20 to 1:50 or something?" Well, I always plan for about one-half hour in the afternoon but our special schedules are not always at the same time in the afternoon, and they have math at other times of the day, they have it in centers and they have it in seatwork, so . . .

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

Well, I think that there has to be some kind of a mark for progressing, because not everybody's going to fall at either end of the scale, but I evaluate the kids each day as we do activities and if I see someone having a lot of trouble I write down the names and then work with those kids.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

It's very important. "Did you find any difficulties in transition from earlier things? Is it a big step up? Or is it a smooth step, or . . ." Well, I don't think it was the smoothese step, because my favorite topic in DMP is equalization and I think that it should come before this. I just, you, I'm not sold on this. I think my kids understood sentence writing much better when I did equalization. And one other thing that I think is a very

bit step is having the facts 10 and 20 all mixed up in the same lesson because for some of the kids when they got past 10 . . . And for some of them, I mean, they, we did the topic on the numbers 11 to 20 but for some of the kids, they are still not exactly sure of 15, is, you know, does the one come first . . . "What about the mixture of addition and subtraction?" That, most of my kids, if they made a mistake on whether they added or subtracted it was the sign, not looking at the sign carefully. They really didn't have a lot of trouble deciding whether to add or subtract. And when I did equalizations, I did that, you know. So I don't think that's much of a problem. And with, when they use the unifix cubes, it's right there. "Do you have any trouble with students relying on physical materials?" No.

2. Which activities in the topic do you feel most useful?

I change some of them a little bit because where it would say, 'The children can pick any number of cubes,' I decided how many cubes because they're sitting next to each other and somebody's doing it with seven and somebody's doing it with ten and, you know, they look and see that this kid's got a different number and then they think that they are all wrong and it just made for too much confusion. So in activities like that I would say, you know, like the change one, where it said they could do any number after you've done a couple with them, I said, you know, start with seven and take away three, so that everybody would have the same numbers. And it was also easier for me to go around to see which kids were catching on to it. So I changed activities in that way. I really didn't like most of them. I thought they were awful.

3. Are there activities you consider unclear?

No, I don't think so. The reading part, there was one, in the stories, where in all of the stories it would say, '10 were in a jar, 6 were used,' but in this one it says, 'He used 8, if he had 12 before he made the chair,' so it was reversed and the kids were so used to the other stories, writing down the number. So I changed that because they were getting all goofed up and I read it to them a second time. So things like that, I think when they are just beginning to write sentences it's a bad thing to do. "To mix the kinds of sentences was too much at that point . . ." Otherwise there was one, on page 16, the one with the washers--I did that with, we weighed the containers we had, the five containers that, we weighed each container so that everybody would have the same numbers when they started to write the sentences. I was going to do that in the center, but I thought it might be a little bit difficult because then I think they did not know all the words. But other than that, I think the best ones were the ones with pictures. "The story ones were more difficult." If the story was there with the pictures, it was easy for them to see what they were doing. I would have them draw pictures of x-out, because at this point they are just learning to write sentences, so it's easier for them if they can actually see it.

4. Are there activities you consider superfluous?

No, I don't think so. Oh, this one. I don't like activities where money is inserted. In fact, in all the regular DMP I pull all the money activities and do one unit on money, because money and time are two things that kids either get it or they don't get it. For some of them it would be easy, but for some of the kids it's difficult. So we do this one all together, and we did some things on the board before we worked alone. "They're not familiar with coins?" Mmm-hmm. The activity was alright but we just hadn't had money.

5. Which activities do you find very complex to teach? Which did you find very simple for you?

I changed some because after using DMP so long that I kind of know which things need to be changed. This was another one that was a little bit confusing because it said, page 13, but they started with 4 and said 'add on 3.' 'Add on 3' and the number was there. It was most confusing with the take away, because it said, 'take away 2.' So kids would take away these two and put them away. And see if it had, if the number had been there I don't think it would have been as confusing. "The take away is difficult. The adding on . . ." The adding on was alright. But the take away . . . "Yeah, I suspect that the only way you can talk about take away in those would be to show the picture again and have two of them move off." Right. Over here where it said 'change,' if it just said, 'take away 2,' then they would have done it over here. But content pictures . . . then it was more confusing. "So they take those two away." Mmm-hmm. "Which of the activities did you find very simple? You said one of them took only a few minutes to do." Oh, the ones with the unput-putter, when they just put in a sign for what they did, or look at a picture and decided what was needed. That's the one that just took us a few minutes to do. I think the hardest ones were the ones where they didn't write the sentence. They had to pick which sentence was the correct one. Those were the hardest for those. "That was an experiment on our part to see whether or not recognizing sentences was possible." Mmm-hmm. I think it was much easier for them to write their own than to look at two and pick which one was the right one.

7. Is there material which your pupils should have covered before this topic which they didn't?

Well, no one will ever make me take out equalization again. I really think that they understand the sentence writing from equalization much better than this way. Because you just, you do so much with the cubes and the links and they really know what addition and subtraction is. And when they start to write sentences it's not all that difficult. So I think that would have been a lot easier. "Next time." Next time. You better believe it. "Should they have had some more work with combinations, numbers up to 20, and so on?" I think that for the first topic, for sentence writing, they should have been limited to 10 and maybe in the second topic when they're used to writing sentences, then put in the facts for 20. "Or at least not go to the 20 until after activities with smaller numbers." Mmm-hmm. But later in the topic, not mix it up all through.

8. Did you use all of the activities or did you choose some?

No. I used all of them. I may have changed a few a little bit but . . . "We've talked about some of them." Mmm-hmm.

10. You said you added some activities.

I made up some of my own stories using just kids in my room--to do the same kind of thing. "And when it came to the last sheet on Monday, you did some things before." Right. We did some things on the board.

11. Is there anything else you want to say?

Just keep equalization. No, I really--I felt my kids did pretty well. But I, you know, I think that some of the changes I made, like having them all use the same number in some things, I felt. Teacher B did this and it went terribly and it was because, I'm sure, they've started with different numbers and they look at the next kid and it's just too confusing. "Each kid doing something different." Mmm-hmm. And it's also hard to tell. "Because you don't know whether the child is doing right or wrong." Mmm-hmm. We're doing a lot of things now that, in seatwork and in centers, with addition and subtraction facts, so that when they get to the next . . . "A couple of weeks from now." A couple of weeks, they'll have a little better idea of combinations. "That's all I need to ask you. Thank you."

Topic S-1 Teacher B School X

PLANNING

1. Do you plan alone or with others? With whom?

I plan with my student teacher. "Do you plan with other teachers?" Not formally, rather informally. Really Teacher A and I. We'll discuss a topic and we have some good ideas and how to handle it, we shart.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

I plan by the week, formally, and if the lesson does not go well or as I planned I alter it.

3. Do you use resources other than the topic materials? What are they?

I usually do. I'm trying this year to confine myself to DMP, however, since S-1 did not go well for me, I am beginning to supplement. Just trade materials--ditto type, addition and subtraction type. "Drill types of things?" Yes.

4. Are there pupils for whom you plan specially? Which ones?

Yes there are, but they're in reading more than math. I find DMP very hard to individualize with. How we handle that is, we sort of, I've always used the inventories as a way of an indication of which children were getting it and which were not. Then I take the inventory and then I make up some supplementary work for those children. "Which kind of children? Is it usually the better children you plan for or the lower children?" Both. But I don't think in this particular instance--mostly I'm going to concentrate on children who didn't get it because I don't see, for some reason this year I don't have anybody that math is second nature to, you know, who gets it before I teach it.

DIRECT INSTRUCTION

1. How do you decide how to group your students?

I don't group them.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

I suppose a lot of it is intuitive. I sort of get a feel from the children on how you're doing with it or how they are doing with it. That's a tough question. "Do you start most things with them and then decide?" Oh yes, always, and then I decide how it goes and I really check their work. I like to check it while they're working to get some idea of how they're doing and whether they can carry it on by themselves. "If you can get them to do it by themselves, do you prefer that?" Yes I do.

4. How do you decide how much time to devote to a topic or an activity?

I don't. I usually let the activity--which is a major problem with me because DMP is taking quite a bit of time. Because we are a self-contained classroom we have a lot of freedom time, I try to make math 30 minutes, but we always go over.

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

I use the inventory. Also I use observation quite a bit--how quickly a child takes to the task, if he's on task, if he looks around at other people. The child tells me a lot. And then I do a lot of individual interview with the child if I feel that I have some questions about his ability to handle that type of problem, I usually do it in an individual basis. "Do you look for kids, nobody looks at perfect papers all the time, do you have a percentage or anything like that that you go by before you start worrying about a kid?" I really don't, maybe I should. "Are you primarily interested in the basic skills. Is that the kind of thing you're focusing on? No, I don't think so. I really feel my own personal bias is children should have some familiarity with numbers--should feel comfortable with them before they start to manipulate them, should have some sense of the relationship of numbers in their life and feel comfortable with them before they start to manipulate them. And that's the way I like to teach.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

Let me tell you, first of all I like the topic. I do not think it was well written. There are too many things for the children learn. I have never seen a math that goes from 0 to 20. That is too difficult. Too many numbers to manipulate. When I said they must feel comfortable before they manipulate the numbers, I think this directly applies. While they will feel comfortable in the inventory, interestingly enough only tests 0-10 and the lnaguage is minimal--they felt very comfortable with those numbers. They've had them in kindergarten, they now can manipulate them. We had one topic on the numbers 10-20 which they associated with objects, which they pretty well did, but no mastery. Just being introduced to them, now they are asked to manipulate numbers 0-20. The attention should be to get familiar with handling the sentences, but if they have to manipulate 10-20, that makes it too difficult for them, and they lose the thought. Again, the other thing that I think was badly written in this is the language. These are first graders--some of them read well, some of them don't. "You mean the student pages?" Yes. They cannot go on by themselves if they can't read it, so that makes it necessary for me to do it with them, which takes away from their experience in manipulating numbers by themselves. If you do it with them, understandably they're going to copy. They know god is standing up there and they are going to write what you write, because, how would I amke a mistake? These kids are so unfamiliar with 10-20 I do not even dare to do what I often do and play devil's advocate and make a mistake because half of them will write it down. So I guess that's my big problem. I think the idea of doing the sentence is good but you complicate it.

2. Which activities in the topic do you feel most useful?

3. Are there activities you consider unclear?

4. Are there activities you consider superfluous?

5. Which activities do you find very complex to teach? Which did you find very simple for you?

6. Which activities did you pupils find easy? Which did they find difficult?

This was terrible (page 2 on the student page) until I changed it. If indeed when you introduce it you must start with a constant, everybody should have the same amount to add or take away. I tried it your way and it was chaos. I changed it for a center and it worked very well, if you have a constant. Everybody has eight. You can use the word change, that's alright 'cause it's repetitive, but add take off 3 . . . You must have a constant if you're dealing with numbers plus under 10. That's my big beef. Page 3 is fine, the language is not too bad. Page 4 is alright, page 5 is alright. Pages 6 and 7 were easy for them. That's good to introduce. So were 8 and 9 because we could--those just plus and minus. Ten was not bad or 11 because, except in cases where you had more than 10. Pages 12, 13, and 14 were not good. I tried to adapt 16 for center--it was just too hard for them, just too hard--they could not do it. The pages that were bad, again, page 19 we have to do together because of the language. Five snails go away--do you relize how many snails there are? [She counts from 1 to 14.] "Again it was the numbers over 10 that were the problem?" Big problem for my class. On page 20 you have false statements. Two minus 3--I know that isn't a false statement. I have to present that as a false statement in first grade because they can't comprehend that, but it bothers me because it is not a false statement. I don't want to lie, and I don't think that's necessary. They are trying to decide which is plus or minus. Why confuse them? If there were 2 ice-cream cones and he buys 3 more--should it be 2 plus 3 or 3 minus 2? Which one should be truthful? 'Cause the thing that you are trying to establish in this inventory is whether you add or subtract. What do you do with the numbers. That is too confusing and has no relevance to them. I believe a lot in Piaget. You've got to remember that these kids are going from concrete--they haven't made it yet. I think this is something that has not been kept in mind. Same thing with 21. Ann picked 8 more flowers. First place, the kids have got to decide whether to add or subtract. Maybe they can do it by "picked more." Using consistent language like add or take away is better, but you have all these conflicting statements. Now, I know that is the way in real life and what you're trying to do and I agree with that, but that is a different story when you're individualizing than when you're dealing with a whole group. First place, five of them know immediately what they want, well "pick eight more flowers." Does that mean that they should put them with the others? Or did she take them away or did she pick them from the garden? You see how really conflicting language that is. A man killed five of the flies. Somebody asked me 'Are those flies dead?' So it's the language. I didn't even do the money. That's ridiculous, because you must learn to count by fives before you do money. "Are the ones that you found hard for the kids different from the ones that you found hard to prepare to teach?" No, I think it's the same. "Were there activities that you think, other than the fact the

numbers were too big and so on, that shouldn't have been there in the first place?" See, I think the activities are alright if you simplify the language and, for me, now it might be the other classes can handle it, I don't know. But for me, all you have to do is simplify the language. Listen to this--"Billy had 4 cents to spend. He found a nickel on the sidewalk. How much money did he have then?" I would say five, maybe four, of my kids could read that by themselves. That means that makes it worthless for me, because you confound the kid if you're teaching them math and you have to teach them a whole new vocabulary. So, for me, if you would simplify the language and confine yourself to numbers 10 or below as you did in the inventory, to me it's a good topic. "The numbers between 10 and 20 is the big thing that you think is missing in their abilities before they hit this topic?"

7. Is there material which your pupils should have covered before this topic which they didn't?

"Other than learning the numbers 10-20?" No, I don't think so. I think, I don't know if you noticed my inventory, but I looked it over and most of the kids could solve, write the sentences and solve--because they were under 10. I guess psychologically that's very important to these kids. Because when it gets to 10-20, the burden is very severe on them to solve. Kids don't like not to solve. They don't like to leave the box empty. That's hard on them and then they lose the feeling of success that goes with the ability to do. I notice in the inventory the whole attitude was completely different because they felt comfortable, so success came more rapidly. They do not feel comfortable with numbers 10-20.

8. How did you choose which activities to use?

First place, I was trying to do them all that weren't optional because I thought I should give this a fair shake. Then when I got--then I really got upset with this. I might as well tell you. I think everybody knows that I'm not a private person. Then I started to be more discerning and I knew what the kids could do and I started to supplement. My big problem was I felt that the kids were beginning to hate math. "Which activities did you leave out?" I left out the money completely. I left out E. I tried E, then I did one of E, then I left out the others. I left out 12. I left out G, both G's.

9. Did you change any of the activities? Why?

"The only one you changed was the chain change thing." Yes, I changed that, and I also changed to smaller numbers. This is good, page 13, because it's really small numbers and they really felt very successful. I did another page like page 11 which was C with smaller numbers. That's it.

11. Is there anything else you want to say?

No, I think I told you quite a bit.

Topic S-1 Teacher E School X February 15, 1979

PLANNING

1. Do you plan alone or with others? With whom?

I plan alone. I confer occasionally with B about activities, but I plan . . .

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

I plan weekly, but I plan activity-by-activity, I guess.

3. Do you use resources other than the topic materials? What are they?

None except what I call fun folders that have facts in them. Those are supplementary things for them to do when they're finished with the day's assignment. "And they just deal with . . ." Just the plus and minus facts to 10. Some to 20 for kids who can do that. "Do you find many kids who can do that?" A few.

4. Are there pupils for whom you plan specially? Which ones?

Yes. Much slower ones. I have an LD student who comes . . . "Any that you might call gifted?" No. That's what the fun folders are kind of for. Those are individualized, I mean some of them are, the more giften ones would maybe be doing facts to 20. There are puzzles and things too, not just pages and pages of facts, but different kinds of, not drill at all but fun things, coloring and puzzles. "The slow child you have, how can you adapt this to use for him?" I have to read it to him, basically, and I have to give him different directions. Make it more simple for him, for example, the spots on the things are too close together for him, so I have to draw it.

DIRECT INSTRUCTION

1. How do you decide how to group you students?

I feel that with DMP it's very difficult for me to group them. Just the way it is organized, they have to all be working on the same activity at the same time. But I do group them up, for example, if some kids aren't getting it the first time through, then that's how I group them, those who are getting it and those who aren't. "So you kind of see these as lending itself to total group instruction?" Yes.

2. Does your grouping change? What induces the change?

"Once you've decided to group a certain way, do you leave it that way?" Pretty much.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

DMP usually says it's a large group or the booklet pages are seatwork. The stories and activities are group. "So you did follow as best you could?" Yes, I pretty much stuck to the DMP, the way it's set up. "Do you do that ordinarily or because we had stressed that?" I think more so this time. I really tried to do it as you had laid it out, but most of the time I followed the guide. "Would you do that with any other text, too, or do you do it more with DMP?" I think I would, if I don't think it's going to work, then I don't. I don't think DMP is any more or less than any other.

4. How do you decide how much time to devote to a topic or an activity?

I have like a half hour a day that I can use for that--it rarely goes beyond that. I have to try to fit in parts of activities in that time. I don't know, I'm not always real good at it, but usually I can figure out just by looking at the pages and the activities just how long it's going to take. "If you had to choose between two or three activities, or some of those things that were optional, how did you decide which you would include and which you wouldn't use, or did you do everything that was in there?" I did most everything that was in there, but I think I did skip a few of the optional things. If it's optional and I don't think that they need anymore practice on it, then I usually skip it. If I'm pressed for time.

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

I like them to master it, but I don't think that's realisitc. I can go on, knowing that they at least have been introduced to it. I prefer that they really not have a lot of questions in their minds before we go on to something else. "Do you use any kind of evaluation throughout the unit? In other words, how do you decide whether or not this student is really getting the material?" Other than daily observation and looking, you know, checking the pages, just the topic inventory as far as the topic goes. "But you do go around and look at the papers?" Yes.

TOPIC INTERVIEW

2. Which activities in the topic do you feel most useful?

Are you going to be asking me more specific questions? "In order to deal with various topics, E's going to go through each activity and deal with each one as far as being clear or unclear, difficult and so on." Activity S-1A, where we talked about plus and minus signs. I thought that was a variable activity except the very first, part 1. The chain change was very difficult, it was very hard to teach. The children did not understand the directions. We spent a lot of time on it that I thought was really wasted time. "Was it difficult because there wasn't a number given initially?" Eventually I went through a few of them and eventually I started out with the same number, and everybody did the same thing. I think it's much too

hard an activity to begin with. Maybe it would have been easier later on. In fact, I did later on give them a page like it and had them do it individually with the whole group and that worked much better. Part 2, the cards, I also used individually and that worked out alright--more as a center type thing. The pages were more fun--3, 4, and 5. I liked the way the pictures were, are big, and the words are written large and the directions are real clear. Then activity B, this is where they learn to write the plus and minus. The story was good, they enjoyed that and the machine--that was fun. Here's where the spots were hard for my LD and for a lot of the kids. To count them, not for a lot of the kids, for my LD especially. But the stripes, I think, were not clear. They didn't know they were to count stripes and a lot of them called this zero zero, but they all did real well on these pages. It was very easy, almost too easy for them. The word problems were fun too, they don't have any bad feelings about word problems yet and that was really fun. Page 8 was a little bit more difficult because the way it's set up here. Once we got into that it was okay. There were all pretty good putting the plus or minus. Now we get into writing phrases. I started activity C with instructions for the unput-putter machine. That went pretty well. "Did you find that easy to do?" You mean as far as for me to teach? "Yes." I didn't have trouble teaching any of this except the very first page. At least so far. They really hadn't run into any problems except for the first page. The problems on page 10 at the bottom was a little tricky--the 3 minus 4. "But they could handle that?" Yes. Page 11, they really did pretty well writing their own sentences--this is the first time that they really wrote the phrase. Sometimes the word Instructions and how many at the top--that was kind of confusing. Later on you wrote phrase--all kinds of different instructions for what they were supposed to do. I just miss calling them sentences and the box--they all wanted the equal signs in case they . . . "So some kind of consistency would have been helpful?" Yes. I found it hard to use this guide with all the pages in the back. Like I'm doing now--it's hard to keep flipping back--look at what the guide is talking about and then having to flip to the back. Twelve and 13, this one was real hard. This is where I had to read, this was all oral, I had to read the situation and then they had to write it--it took a long time. It was very hard for those children who cna't do it auditorially. "Would you say you have many of those kids?" I guess it was so hard because we had to wait for them--most of the kids could have gotten this fine, in fact the auditory would have been better than having to read this 'cause it was too hard for them to read. I'm sure that's why you put some of these in, but if I had gone as fast as most of the group could have gone the others would have been left behind. I was trying to stick to this so I think what I eventually did was let those catch up later. It was real hard for them all. "That's page 25, the teachers?" Right, and page 12, students. Page 13 we, just a little too much stuff on this page--this is where we introduce the word phrase, write the phrase--and they didn't know what that was and then how many after the change. On Activity S-1 optional, I did 14 and 15 where they measured their necks and wrists, ankle and knee. 'Cause they like doing that, it was a little confusing because referring to the 'n-w' they had to keep looking back and sometimes they'd say 'what's an n and what's a w,' and you'd have to keep saying look at the top of your page. That was fun. I did not do the one with the washers, unless I have to I don't use those balances. I just don't think they work very well. So we just did the ones with the necks. Again, I have a really good group. I know that some people really have trouble, but most of my kids were able to

do this page and find the right sentence and get the right answer in the box and everything, but the way it's set up it's very difficult for any of those kids who do have problems at all. "Did you find it confusing when they give an equation 7 minus 8 equals box? Did you think that interfered in anyway with anyone's learning?" I'm not sure it really interferes with it, but I think I don't know why you do that--when that's not the way it's supposed to be done--I think it is just confusing. I don't know why you, what the purpose of putting that in is. Most of them say, 'No, you can't take 7 away from 8,' but any kid who has reversal problems, they just might use that over the other one and I think it's just asking for problems. Page 19 was also pretty good. I was really pleased with how well they wrote the whole sentence--the sentence in the box--the equal sign and everything and put the answers in it, they really did well. Most of them, a lot of them, will draw on to the picture, some of them use links for fingers. "So you had manipulatives available for them to use if they wanted to?" Again, on all these pages I had to work around to the ones who don't read as well and say this says five monkeys go away. The ones who can read did this fine, but the ones who have trouble--even with a few words--I was always walking around doing that. "So you let them work at their own pace?" Right, unless a topic says go over a few with them. Then I do that. Most of the time they work at their own pace. That gives me a chance to work with the slower ones. This is where I'm suppose to introduce writing--this if back tracking a little bit. Introduce writing the sentences before we get these pages; obviously we did a lot of oral stuff and we did it on the board, wrote sentences on the board. I think that's what it tells you to do. S-1 G, I did not use the washers. I did not do part 1. This is where I deviated. I did not do part 1 where it says on page 32 of the teacher's guide, where it says to cut up small slips of paper for about one-third of the large group--write a single number from 0-10 on each piece of paper. This is the activity with the washers and they walk around . . . I think this is similar to one that was in topic 25 or 25 or whatever. I just never had luck with this one and I just didn't do it again. The directions are very confusing and not everybody is doing the same thing at the same time. They just really can't do that. So I didn't do it this time. I did do the stations. I had F help set that up. The setting up of these stations was not difficult. A lot of times is takes much too much time, especially in my case, to set up these stations, but this one was very straight forward and pretty easy. They had trouble because with the directions, say if they start off--on and off the paper--that they're suppose to add them together, I think. Then they're suppose to leave them there and the next person comes and takes them apart. That's real hard too. What I did here, this was catch up day, and I let the slower kids, kids who maybe hadn't finished all their pages or needed extra help, do that. I only let my really top students do this, and they didn't have any trouble. But if I had had the whole group do this at 22 kids, they never would have made it. "So it takes a certain amount of independence . . ." Five to seven kids that was it. The last three pages here, these pages were difficult because there was a lot of reading--again difficult for ones who always had difficulty. Again, I really hate this when 6 equals 2 minus. I guess it didn't throw too many of them off, except the ones who have trouble anyway. "You found it confusing?" Yes. I don't see why . . . They're not ready to have the box introduced first and I just don't think it should be in there. I think it would have been fine and just as valuable if you would have had just the 2 in there. On page 21 sentences--they're pretty good at that.

I like the way this has been introduced so far--it seems to me in previous years I've had trouble with kids wanting to put the box someplace else besides at the end. Maybe that's because equalization was introduced earlier and they got confused. Now, so far, they don't worry about that. Always the sentence is straight forward. Something plus something equals box or minus and they are all very good at that. Again, I'm talking about all of them that fill up . . . maybe two or three. The last page was money--I just didn't think needed to be thrown in ther, the money business. "Did you do it or did you skip it?" I did it with, again, not everybody did all of these last few pages. So the ones who did it understood it well enough to be able to do it, but I wouldn't have had my, maybe three or four low ones, do this at all because it's all reading. There's nothing there to help them out. "Your group is small enough so you can go around and reach most everybody?" Yes. The small group--the people who need help are the small group. "Did you use the aide at all other than setting up that station to help you with instruction or anything?" No.

7. Is there material which your pupils should have covered before this topic which they didn't?

No.

8. How did you choose which activities to use?

Some of it from my past experience. I don't use the washers; the balances are hard. They're not very accurate and it's very hard to do. I try to vary workbook pages and group activities from day-to-day, too. I don't like to have them just work in the book all of the time. So that's how I choose. I think it is set up fairly well so that page-after-page isn't always followed by another page--the activities are varied.

10. Did you add any activities? Why?

I changed that first page in the book, and then again I always add the supplementary. As far as the rest of this, I didn't redo or add anything except give more time to those who needed it. I did on page 12 change that a little bit for the slower kids. "That's the one where you read the story?" Yes. A lot of times I changed wording instead of instructions, I'd say sentences.

11. Is there anything else you want to say?

I thought the topic inventory was very easy. And good. Even my very lowest ones were able to do that--I think 1. You came so fast I didn't have a chance to look over . . . but I think one little girl still doesn't understand how to read the right sentences. I think, from what I can tell, most really did a good job. I think it was much too easy for most of them, but I think that's good. If that's what you were tryint to get from this, then I think it worked well because they really seemed to do a good job on the inventory. It was easy and very easy to give. It didn't take very long. I really, except for the few things that I mentioned about the activities, didn't find this difficult to teach. The ones that were difficult were very difficult and made it almost impossible and I really had to change it, but for

the most part everything was set up pretty well. I enjoyed it too. "Anything else, like having the observer in the room?" It went much better than I thought it would. I really thought it would disrupt the kids. She was very good, she tried not to be obvious about who whe was watching. It didn't bother me to have her in there. I kind of enjoy it when she's not there, I can notice that she's not there, but I don't think it affects what I do.

Topic S-1 Teacher G School Y

PLANNING

1. Do you plan alone or with others? With whom?

Alone. We do talk with the other, I do have frequent communication with two teachers on how we do this part or do that part. So we do talk about it, but when it comes to making my plan, I'm pretty much on my own. I follow the manual. I usually do it Wednesday or Thursday before the next week. I can't do it too much ahead of that because you never are sure how far you're going to get by Friday. "So the other people you plan with are other teachers that are teaching the same thing?" Right.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

I have it blocked out day-by-day. I usually look at S-1, the number, then I figure out how many days it would cover that. I do go by 30 minute periods, how much I would like to accomplish in 30 minutes.

3. Do you use resources other than the topic materials? What are they?

Not really--there has been such a good supply of materials that I stick pretty much to DMP things. I haven't supplemented hardly at all.

4. Are there pupils for whom you plan specifically? Which ones?

Sometimes. If there are children who I anticipate are going to finish faster, who know all their combinations already, sometimes I have extra fun sheets for them to do. Those I supplement out of my own materials. Not too often on that. You try to have something ready for them. "Slower kids, do you do anything with them?" This year, since I have supposedly the middle group, I haven't had to do that, no, because our kids are really pretty well grouped--they're homogeneously grouped. So I don't have kids who are very noticeably slow behind the rest of them so I haven't had that problem. I have the middle group and they are really a good group this year.

DIRECT INSTRUCTION

1. How do you decide how to group your students?

This is the way it has always been done, since I've been here. We do ability grouping and when they come into first grade they are generally grouped according to what the kindergarten teacher's perception of how she feels they should be grouped. We have a slower paced group and an average group and a top group. We do try to make that flexible and move kids quite frequently. "I think maybe you misunderstood me, I meant, how to you decide whether to leave the kids at their seats in a large group or split them up into small groups?" Depends on the nature of the activity.

Generally I start out with some kind of whole group instruction unless it's something that we're carrying over from the day before, but I always start with some activity up on the rug--some kind of oral activity--or we do some kind of things at the boards or we do some kind of game together, then they go back and do some individual work or go to stations. I generally start out with a whole presentation and then go to either individual work or small group work. "If you want to go into more detail, you can state why you make those changes." One other thing on the first part--a lot of time the children are working in partners and that generally I let them choose their own partners. If I find somebody who is choosing the same person all the time I try to break it up and encourage them to have a different partner. If I anticipate that some children are going to have a hard time I'll try to pair them up with someone I know who will be a good helper with them. Generally if (re: changes) it's something new, then it's most efficient to make a large group instruction--when I've had groups that have more trouble sometimes I would break it up and have a smaller group or I would pay more close attention with each child, but they are pretty good listeners and I don't have too much trouble getting my point across to the whole group this year. It depends upon the nature of the activity. If it's directions I do that all at once, if it's a game and I want to see closely what every child is doing then I will go to smaller groups. "Then it depends basically on the activity?" Yes.

3. <u>On what basis do you decide whether an activity should be seatwork versus teacher directed</u>?

If it is something that they can do independently. If I feel that they are capable of doing it on their own, I will. If it's something new to them, then I'll introduce it and do something with them as a group or in small groups. Probably depending on how difficult it is. If it requires reading, a lot of reading skill, then I will give them more direction on that then if it's picture following.

4. <u>How do you decide how much time to devote to a topic or an activity</u>?

I guess I'd have to say past experience, otherwise you wouldn't know. If I anticipate from past experience, again, that this is a difficult concept I might plan to spend two days on maybe, sometimes what I do is take formats that their DMP book has and make up another page or two like that. If I'm afraid they're not going to get it in the one page of the student booklets, so they will have something to reinforce them. At first when I started DMP it took awhile before I could estimate how long it took. "Do you make some changes in the topic, like do you decide at the time you are teaching it to make changes?" Right. It's taken more time than I anticipated after we introduced the equal sign at the end there, they had a harder time with that than I expected so like tomorrow I'm supposed to be giving the topic inventory but I hope it's okay, I'm going to spend another day on the last part of the booklet and give the inventory Monday. I think they need a little more work on that.

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

I like the topic inventory at the end. I think that's one, but all along you're really evaluating. To me every day they are getting kind of a test on their written work. To me that's my best feedback--with my own personal observation and their daily work. That's really more important than the topic inventory. I get more feedback from that than you do on one day. So besically my observation and their student work. What they communicate to me too--that's one thing the new topic on DMP is I've liked is just asking the kids--I really didn't focus on that before and asking them how they got there--I would go more on what their paper and pencil work showed me or what I could see them doing, but I'm surprised how well they can verbalize what their thinking processes are. "You found that that made a big difference?" Yes, it's more revealing to me and these kids are pretty verbal about it. It gets the other kids to start thinking about it. When you ask one child the others are listening--well, how did I get there too.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

I think it's very very important and I think it might even be better to introduce it earlier if possible. I think we could even start on this in October or November next year. Other things--the earlier topics are fun and I'm sure they're basic too, but I think that maybe we spend too much on the earlier topics. I consider those kind of more enrichment. I'm afraid we're going to run out of time toward the end of the year on problem solving. My kids are ready for this a lot earlier, this particular group. H has the lower group and they're struggling with it. The timing has been just fine for them. If I had the average group next year, I'd like to start them on this a little earlier. "But you do feel the overall topic is important?" Oh, very important. It's basic, you know. This is the basis for problem solving and computation.

2. Which activities in the topic do you feel most useful?

The first thing we did where they have the change, I liked the idea of that but it did require a lot of work. It was hard to do with the whole group and next year maybe I would arrange it so I could work with just half the kids at a time because it was hard. They understood the basic concepts of what they were supposed to do, but they kind of got mixed up on which was supposed to go in what box. Just the procedure threw them a little bit, but the idea was really good and I thought that was a good way to introduce the topic. I didn't do part 2 because--where they had to make a chain of 9, make a chain of 4, put them together--they knew how to do that I felt. I moved right on. I felt they were ready for the plus and the minus. I like the unput-putter very much. I think that's great. One thing that H did that I think would be nice, she made herself a big card of the unput-putter rather than just that little one that we had and she made a big deal out of that and also one thing that we all added that might be good for the whole program, is to make a dial. There wasn't a dial provided to us so we made our own little dial. We had the kids make their own too. Where

they had a plus and a minus. That was fun. I liked that as far as introducing the plus and minus. Then the story problems--I liked all of them. Then we went on to oral listening. Those were good. I did a lot with them orally on problem solving before we actually did too much in the book. A lot of the kids already knew about putting the equal sign in and they were doing that. When they just did the first phrase with 4 minus 3 or 4 plus 3--they didn't have any trouble with that. A lot of them already put in the equals. They're very intent on finding the answer right away. That was one thing I have to really slow them down on so that they would get the sentence first instead of concentrating on getting the answer. Concentrating on the process and writing their sentences. The one problem I had with the book toward the end--they have a picture of say, 6 donuts, and then they say 4 went away--the kids, a lot of them would have a hard time remembering to put down what they started with. They want to say 4 take away something, so they would get confused on that part because it didn't say--if they said there were 6 donuts take 4 away, then they could do it, but if there's just a picutre of 6 donuts and it said 4 went away, they'd put 4 take away. So sometimes they would get those directions mixed up. Or they would write backwards--3 minus 4--that was toward the end. Sometimes they would do that, it would say take away 3 and they would put 3 take away, then they wouldn't know where to go. Maybe that was my fault. Maybe I didn't stress what they started with enough. Once I noticed that, then they started to correct it--that was a problem on the directions. I really liked the topic. I like the way to was paced. To give them enough opportunities at each level. Course having the cubes and everything--to me it was the way everything went along, it was just about the right speed. To me, on the, for my group, I really didn't need as much time on the dial part. Most of the kids knew what a plus sign was and what a take away sign was. There were only a few who were unfamiliar with that sign already, most of them knew that. Where they had a choice--here's a ball, take away 3 strikes--a lot of kids were not aware of the difference here between 3 take away 4 and 4 take away 3, so we spent time on that. "How did they handle the 3 take away 4?" Most of them put 0. They would think, they can't do it, they would just put down the 0. I would say, it's not really 0--it's something they'll do later on. It really would have to be less than 0. They would kind of look at you and say 'Less than 0?' Some of the kids could conceive of that, but most of the kids would just think 0. I liked the transition between writing the phrase and having the answer. There was kind of the middle step here on page 13. Then when they went back and put in the equal signs. This was hard--measuring their necks and writs, basically because they had a hard time measuring their own necks and putting . . . we just had a hard time doing the measuring. I think the measurement is fine, but it's kind of tricky. When they had made 2 n's? How much would 2 n's be, they would take whatever n was--let's say n was 7--they would say 7 plus 2. A lot of the kids would do that. Or they would put n plus n which was correct. It's funny, because they would substitute the number every other time, but when it came to this one they would use the letter. That one was definitely on how long would 2 of something--2 n's or 2 w's or 2 a's, 2 k's on page 15. Those threw them too. Very few of the kids got those on their own. "The would just take the numbers and add 2?" Right. It wasn't 'cause they couldn't read it, 'cause most of them could read how long are 2 a's--and once we talked about it, then they could see it and after they've had a couple of examples then more could do it when they saw it again. That definitely threw the majority of them. Here's

another one. When it said on page 16, 'take 2 from h.' They had a hard time understanding what that would be, you know what they did? They went 2 take away whatever h was, instead of understanding. I think it would be better if you would say take h and then take 2 away or start with h take 2 away. The take 2 from h, maybe that language is something we want to get across. They always tended to write down on their sentence first whatever was first on the problem. We should either leave it that way and deal with and teach the interpretation of the problem or change the wording. A lot of them would do that. They would say 2 take away h, if it was bigger than 2 then they wouldn't know what to do. Page 18 and 10 and 20 are real good. These were good too, because they threw in like 5 take away 9 and they had to choose the right one. Here's the one, page 21, they wouldn't always remember to just put down the number they started with. They'd read a man killed five of the flies and they would say five take away and then they couldn't know where to go with it. This problem was hard for them--no more houseswere built on this block--they weren't sure whether it was plus or minus. When you think about built I think of adding on, but that wasn't obvious to the children. A lot of them had minus on that one. Especially when it said no more. They would equate that with not take away or stop. A lot of them had 5 plus 5 on that one instead of 5 plus 0. I didn't get to 22, on the money problem, yet so that's another reason I want to take another day before . . .

3. Are there activities you consider unclear?

No, basically the ones I mentioned before.

4. Are there activities you consider superfluous?

This one on part 2 on the very first one where they had the cards. When they had to put them together. To me that was basically what they were going to be doing the rest of the unit. I was ready to go right to the plus and minus. Other than that, none.

5. Which activities do you find very complex to teach? Which did you find very simple for you?

The 2 a's and the 2 n's, that part, that was kind of tricky thinking. "Everything else, then, was simple?" Yes, I really thought it was very well done. They don't have the missing addend at this point, I really like it--improvement over the other unit. Those kids who really knew what the number sentences were about could look at that, but that requires a lot of sophisticated thinking at this age level. I really didn't think they were ready for it.

6. Which activities did your pupils find easy? Which did they find difficult?

Doing the manipulating and joining and finding the right answers they could do pretty well, but when it came to writing sentences with the equal sign in the box and writing the whole complete sentence, that was something new--I mean they'll do the whole thing together. I wouldn't say it was difficult, but it was definitely something new to most of them. Writing the whole sentence. I didn't think anything was beyond them. "Which ones do

do you think they found difficult?" Finding the 2 n's and . . . That one was definitely the hard one. The actual computation using objects, that wasn't hard for them.

7. Is there material which your pupils should have covered before this topic which they didn't?

No, I'd say they were well prepared. Especially just having finished the numbers 11 through 20. That was a good lead into this. "I take it that you used all the activities in the topic?" Except that one in the first part. I skipped one on the stations at the end. That one I just didn't think it would work. Where they had to match washers--some had washers and some had blank pieces of paper. I made up my own stations with that one because I thought I could just see everybody going bananas--I thought the directions were too complex--so I thought up my own that was a little simpler. "Which activity was that again?" That was toward the end, I think it was right--one of the last ones--S-1 G.

9. Did you change any of the activities? Why?

I still had a station thing, but I didn't use the one, you had the same idea what they were after, but I didn't use your format. "You thought that was just going to be too difficult? Not the concept but the procedure that was on there.

10. Did you add any activities? Why?

Not really. No, because I was kind of squeezed for time, so you could test today.

11. Is there anything else you want to say?

I think it's a great addition and the revising was, like getting rid of the missing addend, maybe we can have it a little earlier. Especially for the top group, they are ready for this really in early fall. With the way we group the children. "Anything about the coding that went on in the classroom?" No. I liked the way everything was introduced part of the time and them putting all the parts together. It was real good.

Topic S-1 Teacher H School Y

PLANNING

1. Do you plan alone or with others? With whom?

By myself.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

I usually go topic-by-topic and then run through the whole thing and then I can change that. But I would just as soon go through and see how long it's going to take me to do the long range planning. I find if they did really poorly on one day than I'll have to repeat something similar the next day. I might fall behind that way but then another one I might catch up another day.

3. Do you use resources other than the topic materials? What are they?

My own ideas and my own projects. But no other series from a company or anything. I go according to the topic. I keep separate files on each topic.

4. Are there pupils for whom you plan specially? Which ones?

Our Title I children that come in and need all the extra help and need someone standing behind them all the time. "How do you plan differently for them?" We just make sure that someone is there with them when we have the activities. They do get extra help like at recess time or afterwards we have to help them finish up or we have a whole entirely different paper for them too. "Extra sorts of things?" Yes. "Are there any bright kids you have to plan for specially?" Not necessarity, 'cause we group. One teacher has the high level and one has the middle. Lots of schools keep them all together and I just think that's too hard to plan for because so many of these kids, like Teacher L is ahead of me by two topics. My kids just couldn't handle that. I'm sure some of them won't pass this test from this topic, so I'm glad we do regroup that way. I've had one student that I've had to move and I probably could move a couple of more up to Teacher G's class, but you need a couple of leaders and a couple kids . . . "It's mostly the slow kids that you have to do something for? There aren't any other special kinds of kids for other reasons?" No.

DIRECT INSTRUCTION

1. How do you decide how to group your students?

At the very beginning of the school year? "No, either at the beginning or during the activity." At the very beginning of the school year what we do is basically regroup according to the reading group, that is, if they're in a high reading group then the top three reading groups will go on the top math group and so on. Then after about the second week of school, it's

been pretty close. Usually if they do well in reading they do well in math. We do regroup then. It's very easy to say 'he's not doing well, can I move him up to your class?' and so we switch a lot during the school year. "When you're teaching right in your classroom, do you group the kids?" No. I teach a large group and then we do, if we work on stations and that type of thing, but, no, I never have one group doing this and--well, I should take that back, sometimes when my student teacher or our Title I aide or when our aide is in the room, then I might say these five children really need a lot of extra help and she might take them and I might do another activity, but never alone. It's too hard.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

When I have a low group like I have this year, I've never had that before, I've had low groups but not like this. What I usually do is when I have like the middle or the high group you can just give the directions and they do the activities and you can go so much faster, but with this group I do almost every page together. You can do a thousand activities and with this group they'll go to their book and say 'I don't know what to do.' They're a different type of group and so I generally do all the activities together. Once in awhile when we've gotten really close to the end, I have said 'I would do the first two with you and then you do the rest.' I also found that in this topic there are many children that instead of saying always 'add on,' a lot of the kids can read 'add on,' but then they say they came and went away and they don't know all those words, so I found that reading really caused difficulty in this and also the last three--all those story problems. I really have to do most pages with them. "If you did have a higher group, would you try to have them so as much independently as they can?" Oh yes. Because they could read all that. There wouldn't be any problem.

4. How do you decide how much time to devote to a topic or an activity?

I guess just after teaching the first year we weren't done with half of the whole curriculum by March or April so as we get going with it and the more and more we use it. We remember we don't have to do this or spend as much time on it, so I guess it's just from experience.

5. What type of evaluation of student do you favor (mastery or not, low level or not, other)?

When I look at a test and I see that maybe their mistake was counting, say for instance they had to find three and four equals what and they put six instead of seven, I say okay, because a lot of the kids will be counting real fast and it's only a matter of what they counted incorrectly and so a lot of times I look and see how their classroom work is and if that child is really working up to his ability. If that's all he can accomplish a lot of times I say 'that's fine' so a lot of times it's teacher judgment, like what I expect from them. "Do you usually expect them to be pretty good before you go on or are you willing to be so-so for some activities before you would go on to the next one? From topic-to-topic?" The other ones they all had that up until this time they really haven't had too much prob-

lem with the topics. This one I could probably spend a couple more weeks on but they really need a break and I can tell they're getting bogged down with it and they just really need that time to go to topic 26 and have a little relaxation. Sometimes it's depending on how bored I find the class is getting or if they really are still interested in it and I know they can use a little bit extra, then I go on.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

Extremely important because that's the most that anybody complains about; because they don't know their basic facts to know what they are doing. So I would say that that's one of the most important things and I'm glad that we're starting it earlier than we usually do.

2. Which activities in the topic do you feel most useful?

With my kids I have to entertain them so much so I always add so much more than what's in the book. The things I did here "the chain change," I just can't make up my mind I would say, 'no I think I'll have you add on some more' or 'oh, no, I'll have you,' so I kind of made that as kind of a game where I just couldn't make up my mind. That first page had quite a bit on it. A lot of times I will have them go and take, say there's a book and there's so much on it, I'll have her take pen lines and separate all of the activities. There's just too much together and when you say go up in this area . . . another thing that I would like to see on a lot of the pages when there is so much is to either letter them and say go up to box A, or box B, or put a little star and say go up where the star is. If they had a high group the teacher wouldn't have to say that, just say go up to the first box or whatever. A lot of the lower groups need something to tell them where to go because they'll say, 'Where? What box do you want?' 'Oh, look where the star is,' and then then can find it. A lot of it was too much on this first page, I know. Another thing that I did for activity A, it said to have every child take a different number . . . "So A wasn't difficult for them, was it hard for you to organize it?" No. The unput putter was just extremely better than the last. I made a great big huge one with a dial and everything and we took that off and we made sentences to put into it. They caught on to that right away. I think I have one who still gets the add on-take away sign mixed up a little bit. That really helps though, that's really good. This is what I didn't really like--they all had three more mice came--and I really couldn't have my kids do it alone because most of them couldn't read it. "This is page three?" I would rather have had, even after you introduce the signs you still had the reading and I would have preferred . . . of course that would have told the answer, but too much reading for my little group. Page eight--pretty much for my kids to handle. The biggest problem with my kids was just careless counting and if there was an add on they would subtract instead and get the wrong answer. Page 14 was hard and 15 and they were suppose to do their own neck and wrists; I did mine. We measured my neck and we measured my wrists and we did everyone together. The same thing on the ankle and my knee and we used my numbers and everyone did it together because . . . page 14 took us two

days, then when we did 15 it wasn't too bad then and they had gotten used to that, but putting 2 A's together--well we only measured one ankle, so they got kind of confused with that. I thought those were hard pages. We were suppose to go to centers with this. We did it all together up in front of the class. They couldn't have handled that. I had a big cart up on top with balance and then I said, 'This is G. I need someone to come up and measure.', so I had five children measure. It took us almost two days to do this. At the centers it was really too much so I really change a lot every year with the classroom that I have. I think we even skipped page 17. If I would have had a good group I might have taken this out and put it in the center or used some extra--maybe taken it out and given it to them as hoemwork. But with my kids I just didn't do that. This page I had the aide take a line and go through this. Another thing, now what I did when I introduced the equal sign, I took the words a, dog, and brown, and I said--sometimes I refer to this as a math sentence and then I kind of refer back to reading sentences too. They have to make sense when you're writing them and I say 'A dog brown,' and they say 'that doesn't make sense--put "is" in there.' So I had a-dog-brown written in black and put the "is" in red and then they read it again and say 'that sounds read good' so then I put a math sentence up and I read '10, take away 6, 4.' When we play bingo I go '64--6,4. I always say the two numbers until they learn all the numbers and everything. Then I had 10 take 6 and 4 written in black and then I said 'that doesn't make sense--what's 6,4? Sixty-four? That's not what we're trying to tell people when we're writing that sentence, we need another math word in there--a math word--well, is. 10 take away 6 is 4. Can you think of something that means is? That we're trying to find out?' Someone says 'equals.' Then we put the equal sign--really no problem with that. We had the two together and then I said 'now it sounds much better' and so we read it and then--that really wasn't much of a problem. This one, a lot of them did this page, page 20). They put the small number first. Then when I kind of brought up--I said 'how many did they start with? Does this show that they started with 9?' Right away they went up to the other one. All these last ones we had. I had to laugh because I was reading this over--I said 8, there were 6 parachute men. And the aide was in the room and she goes, 'Teacher H, those are parachute women.' I'm glad you got that in there. This was very hard (page 22) and . . . was the last one to do it and I wanted to warn you because I stopped and tore out the money pages on the last couple of units because my kids are not ready for that. You say 'how much is a dime worth--nickel , a nickel.' Their concept of money is very off right now. When I say he found a nickel I always say he found 5 cents. As I was reading it I just changed right away, I did not say a nickel or a dime. "When you changed the activity it was really just to clarify it rather than to change it?" A lot of times what I would do too is like, when I knew an activity was going to be really hard then I would go backwards and I would take a day out and just do my own activity or my own thing back at the rug as an introduction and then the next day we would go into here or do the activity that they suggested. I used the overhead a real lot. I found that that really helped with the pages where I could point as long as you didn't have the A or the B or whatever. Some of the pages I said, 'okay, now look where my fingers are on the overhead.' So I did use that a lot.

3. Are there activities you consider unclear?

No, I used almost all of them. I played a game with this just a few times--I cut these apart. It really wasn't necessary, but we had a little time left and I made them draw one of the cards and then they had to do the directions in front of the class. I don't think they called for it as a game or contest. I had a lot of contests. I really had to spend a lot more time than was suggested. "Motivating things?" Yes, to get them going at it--more than just introducing it. I'm not so sure that that is not a bad idea for the high groups too because you find--my high kids that I have in my reading class, I find, oh, I didn't have quite time enough to do that activity, but that's alright. I think you kind of let those kids slide by sometimes and go always to the low kids and so I hope that if I do have a high group again that I will remember that they need those extra fun things too and they can't just have worksheet after worksheet. There were a lot of days when we didn't use the book, that I did other activities instead.

7. Is there material which your pupils should have covered before this topic which they didn't?

No. I felt that going from the new 21-23 combination and going into this, I felt that it was much smoother than other years. I miss Greedy Duck. There was one thing where they did have the greater and less than sign in the old booklet and we never had that in the new 21-23 so we had to rip that out.

9. How did you choose which activities to use?

My big unput putter--we had fun doing that--made a ditto of the unput putter and I put it on cardboard and they decorated. I had the exact same replica of my big one and they made little dials--plus and minus--we took paper fasteners--so that took us a whole day. I read story problems and they turned their unput putter dial to the plus or the minus. I always did that with Greedy Duck, too, and made puppets. The art activities and the extra things. "Did you add any sort of content thing, any math content that wasn't really part of the unit that you added?" Not really, I never have my booklet in my hand--my teacher's manual--I always just do it the way I talk and that's always worked out best for me. I don't like reading things right off the manual. I piloted this program before it even got off the ground. We were using paper clips for links and I think I worked 40 hours a day on the math and I still should know it like the back of my hand, but I change it every year. I do a lot of, like, puppets to introduce, or I pretend I was a magician and I'd gotten these magical powers and I just make a lot of stuff up to get them motivated.

11. Is there anything else you want to say?

I really like most of it. The only thing I don't like, how here, you had them all labelled, we could see go to this go to that. Some of them had just too much on each page, and the reading part of it. I don't know if it would have helped to have a picture. I just thought these pages (the ones with many problems to read) were awfully confusing. It was good, they really had to listen and, I don't know the other classes or what the other

teachers. . . Having just the teacher measure or you could even pick one child and use them for an example, that would be a good idea too, but I think it's hard enough to keep everybody on a page, much less having everybody have a different number. That was probably the worst, I guess (pages 14 and 15). I just have a class--I'm just sweating by the time I get done teaching. You have to pull everything from them. I'm glad that we had this change over, 'cause I think it's easier. I just can't imagine having to teach with that old 25, with the box in every different possible situation. Is S-2 going to stay pretty much the same?

Topic S-1 Teacher I School Z

PLANNING

1. Do you plan alone or with others? With whom?

Alone.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

By the week, and then I make daily changes. Usually my plans are pretty close to the way I planned them. "When you make changes is it usually because of . . ." They didn't finish up as much or I wanted to review or go back over a particular concept I thought there might be some question about.

3. Do you use resources other than the topic materials? What are they?

I make additional ones, yes. More visual, say the unit on the dial, the put-unputter. I made a dial, and they put it for "adding to." You know, the simple add on and take away. I make cards if I'm using the word add on and take away where we made, I think you had some story problems where they were to tell what they would do, I had them hold up cards. This type of thing.

4. Are there pupils for whom you plan specially? Which ones?

There are children in my group who I know are going to have difficulty with the concept because of their past performance and therefore I am with them a great deal of the time checking to see if something is happening or not happening. In the event that it's not, I try to catch it right there because teaching is easier than re-teaching. "But you don't plan in advance special things for them, do you?" No.

DIRECT INSTRUCTION

1. How do you decide to group your students?

"Do you group your kids for math?" No.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

I know the first year children quite well. Therefore, I can tell pretty much what they can do independently and cannot. Also it depends on the time of year. They can work better independently the latter half of the year than the first half. Some of the things are poorly written up and poorly directed and therefore I have to make changes. "Do you decide that you want them to do as much independently as they can, or do you think that the parts you direct them with are just as valuable?" I

think it's very important with first year children to give them many directed activities so that they can gain skills. I do not concur with educational philosophy that says 'I'll give you this time to be creative.' I think you have to give children skills first in order for them to be creative and the more skills you give them the more creative they will be.

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

I don't make up any tests. I can tell what my children are doing just be observation. If I have any question, I may work with that child individually. "Are you mostly looking at their progress on skills or are you looking at higher level kinds of things as well?" I look to see if they know what they're doing.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

"In terms of S-1. Is it less important than others?" Yes, it is important. I think first year children are learning to read recorded messages and to write recorded messages so it would seem rather logical to me that you would be dealing with this in your math classes.

2. Which activities in the topic do you feel most useful?
3. Are there activities you consider unclear?

If I go to the worksheets I can give you my opinions. Chain change, forget it! "Because of the difference in responses?" I just didn't care for the whole set up. I thought it was confusing. I thought we were talking about a change and I'm not sure that word is the most meaningful. A sequence of chains was difficult. I would say if you cut it down to just one--not two chains. I used it, but I doubt that I would do it again. I probably would cut it in half. "You'd use the first half?" Yes. Do you want my comments? "Yes." Way too much reading. Our children in our particular reading program are not ready for this much reading. My faster groups are. Ifyou are in a more sight vocabulary oriented type of reading program, the kids might know more of these words. Our kids are in phonics. Therefore, it takes a little longer to present all the phonics before they can apply it. All of the reading, I either read with them or have someone read, but I had to check it. Another comment that I was really most unhappy with was page . . . I like page 14 where they said make and take off 4--I thought that was sequential. On page 16, where they said take 3 from 't', I thought was poorly put. If they would say 'look at 't'--take 't' from 3.' Because I think primary children--this is like teaching them to almost reverse thought processes. I was unhappy with that. I felt we had errors where they knew the concepts and it was our fault. I have some hesitancy in some of the instances where they saw the wrong thing. They saw, I'm sure, 2 take away 6. I really, that concerns me. I would prefer not to, it may come up. Let's face it when it comes up. "Did you change it when you taught it?" Fortunately we didn't really have to get at it. They picked out the right answer, but I still was concerned that they had seen this. Some did come

up with it--I'd prefer to wait until it came up naturally within a group or with an individual. If I were writing this and was going to include it, then I would include in great detail--I call it an impossible sentence--and that's what I tell my kids, 'Did you write an impossible sentence?' Then we cross out so we know. Again too much reading. "This is at the end." This I had to read with them, and we were in a rush to finish up here and didn't even go for the cents signs.

4. Are there activities you consider superfluous?

I changed them. People must understand that this is my second year and last year when I worked with your unit, and I usually do this when I work with new material--I stay pretty close to what you want me to do, 'cause I have to find out what you're getting at. It was frustrating. This year I'm doing it my way. I know your concepts and now I know mine, but I always feel I have to pretty much think through with the person who wrote the manual before I can say, 'Hey I don't like that.' So I'm much more comfortable.

9. Did you change any of the activities? Why?

"What kind of changes did you make this time when you taught?" I can tell you right off the bat, very near the end--the activity where they were to do part 2 activity G--this is where they had objects or sets at stations and they were to figure out what they should do. I just didn't feel that my first year children would handle that well at all. I thought we were asking them to combine groups and most of them would leave them as a combined group and I could see others coming and saying, 'What do we do here?' Even though it's built in here--it says they should do the set separating and move on to another station. Thus, at a given station the objects alternate being on the paper and some off. As a result, different pairs of children will write different sentences. I thought that sounded very good, but I didn't see it working out realistically 'cause some would not put them back on the paper--some would be on the floor. "So it was the logistics you were worried about?" Well, I thought the purpose was, could they go to two sets and either join them; add them, write it down, write a somethings box, and solve it. I just made up my own. I made a card and I put a number here and a number here and they set up their own sets. It was a little more structured. Another time it had one take away. I had the number they would be dealing with and down there it said take away so and so--so they handled it very nicely. "Were there other ones beside G that you changed?" I wish you people would have told me that this was coming up. I really would have taken notes. I just adapt so much, or I give them visual clues, or I change it--or I go dramatic on them. "Is it the same concept, but done a little differently?" Yes. I think you people are not geared enough to the primary child.

7. Is there material which your pupils should have covered before this topic which they didn't?

Not particularly, but I am concerned somewhat about your sequence. This concerns me that I'm going to go over off into topic 26 next week and I've got them all hot on this and we're going to go off on this other

stuff and I'm afraid I might lose something here. "That's interesting. Most teachers want the break." I can't see it, not if you're building on sequence. That's how I teach. I'm willing to bet my kids are going to say, 'Oh, this is easy."

10. Did you add any activities? Why?

No. I guess I modified more than anything.

Topic S-1 Teacher L School Y February 9, 1979

PLANNING

1. Do you plan alone or with others? With whom?

I plan alone at first. I mean, I have to read it over, especially where it's new. If I've used it before, you know, that's helpful. But I like to sit down and plan for the week and then I go back as the day comes up that I'm going to use this lesson and I will get over it usually in the morning when I get here. Then when the aide comes, then we talk about and plan together and talk about how we will prepare for the lesson and what we're going to do. "So the planning sequence you follow is basically week-by-week, but then within a week, it's day-by-day. But the initial plan starts with you looking at the set of things and so on?" Yes, right.

3. Do you usually use resources other than the topic materials? What are they?

Well, when we're weighing things, you know, then we have to scrounge around and find, and we use tacks, or we use brushes or anything, you know, that will come to the weight that you want. I wish sometimes when I have to search and search that there were more materials furnished that would, you know, be used for that. "But in general, with respect to say the topic you just completed, you didn't use . . ." No, we used the cubes and the links mostly. Yes. No, I didn't use other things. Well, I like cards and I put the plus and minus on when I introduced the things.

4. Are there pupils for wom you plan specially? Which ones?

Yes. Sometimes. Now, maybe I can back up a little bit. We have, you see, in my top group, from the other two rooms, there are three first grade rooms, those children are really top. My room is a little lower. They're a little slower. They're a little more immature. They're intelligent youngsters. They need a little more help. It takes them a little longer; their thought process is slower. So many times we will take them, if they have gotten a little behind the other children on a lesson, and the aide will take them out like in the morning and she'll work with them. And sometimes right within the room I have given them extra worksheets and put out, like I callthem stations, and I'll say, 'Here is Station 1 and there are 7 or 8 stations, you can take any worksheet you want and work through them.' "Which children are these?" Okay. Can I just give first names? Like Jason and Meg and Tina and Teddy, once in awhile Michelle and Scott have had to go too. But the first ones I named are rather slow.

DIRECT INSTRUCTION

1. How do you decide to group your students?

Well, I think I got the top group this year because I have such a slow room otherwise, and I think that was one of the factors. I really haven't had too much to do with the grouping of the math children.

2. Does your grouping change? What induces the change?

Yes. We have had to move some of the children, and we can do that readily in our team meetings. We talk about it, how would this child move in socially, and so forth. We've done this througout the year. Sometimes we've talked about it but haven't done it because we were a little concerned about the feelings of the child too. It isn't only how they do on the skill or on mathematics, but also the social, you know, once they've made that friendship in the room, it's a little hard sometimes--some children may have more sensitivity than others about moving. So then we would see to it at the end of the year, now, make a suggestion that maybe they'd be working with a little slower group.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

Naturally I am up there to direct them and guide them, and if they don't need me they go on their own, they work independently and the group I have you get them going, they're just off on their own. "Basically you attempt to follow the activities that are pretty well outlined." Right, right. And if, you know, sometimes if I think it's not going to stimulate them, it's not motivating and they know it very well, either I've tried to enlarge on it to make it more challenging, or go on to the next step which they let us do.

4. How do you decide how much time to devote to a topic or an activity?

I guess I just start . . . "Start and see how far it goes?" Yeah, right. I don't think I say, the topic's going to last me, you know, three weeks, or two weeks. I really don't do that. I really feel for the children and I, I'm not teaching material, I'm teaching children. "Okay. Well, that's one of the things that we want to make sure--part of the purpose of this interview is to make sure that we get those kind of comments down, because we know that in a couple of cases, not here, but the other teachers have been working on it too, we have so many minutes, and so much . . ." No. I know the aide was trying to get me to say, now when are you going to have your paper and pencil test, and I said well, just let me see, I'm not quite sure. You know, I want to be sure of the feeling the children have, that they're getting this.

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

I think in math children have to master or they're going to be lost as they go through the grades. I could be very wrong, but that's my feeling, because I know in my own case, where I mastered the combinations it washelpful later on. "Now I have a few relatively short questions on topic S-1."

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

The children liked it. It challenged them. And may I be frank? I have a little feeling--I'm not sure, see, I haven't used it yet, but I've been looking over this next topic, Topic 26. I'm wondering if that isn't going to be a little let down, but then I think to myself, well, maybe it's good. Maybe they can relax a little bit and be ready to take up a little harder one again. "This one's fairly challenging, right? I agree with you there." I thought, when I first picked it up, I thought S-1 was a big step up, and I wondered, I don't know, this was just a thought, that there might have been a little preparation in between. Because right away we went from the change of adding and subtracting, that was the first mouthful I gave them. But they took it. It went great. "Well, I think in the eight classes we've got, most of them are doing pretty well. But we've got a couple of them, I mean, where the jump is a little too much. Trying to do both adding and subtracting at one time is hard." Yeah, it's a pretty big thing, because we haven't really done that much." Some of the parents were a little surprised that they jumped it up to 20. You know, usually first graders are through 10, but I'm a little happy about that, I think. I think it can go beyond 10. Because these children think in bigger numbers.

2. What activities in the topic do you feel most useful?

Well, I like the way they introduced the plus and the minus, you know, I thought that was--I think it clinched it very well. The idea of change, where they change from, like you were adding on like 5, and then you change or took away or whatever and it seemed that the children picked up the idea of the sentence very easily, that 6 plus 4 equals 10. And I taught the whole thing right away. I didn't teach part of it, I just let them go all the way. And they were ready for it. I don't know if you call it a something box, do you, or do you just call it something? "Something. Something box, either one. That's alright." Get all these different terms, you know. Every one is a different term.

3. Are there activities you consider unclear?

Oh, let me think. There was one but I can't remember it. There are some we really have to sit down and figure out, but I guess after we talked it over, the aide and I would get together on it, we were alright. But I don't remember now.

4. Are there activities you consider superfluous?

No. I thought it was a good activity book.

5. Which activities do you find very complex to teach? Which did you find very simple for you?

No, but I have a big group and I feel I've had to put an awful lot into it to get them all to keep their eyes on me and work with me. I've felt that strain, but that's nothing to do with the program. And that might be me too, feeling, sensing the children, whether they were getting it or not. But I felt that, step-by-step, the, it went very well. "Were there any activities you thought were, perhaps, too simple? I wish I had my book here. No. No, I think that they were very challenging. "More challenging than some. The topic itself, there's really not much review in that. That's what I'm concerned about."

6. Which activities did your pupils find easy? Which did they find difficult?

Well, of course when you have someone like Russell and Teddy, it's so simple to them, a lot of it. But some of the children, you had to be more helpful, more encouraging. You had to guide them. "So that the ease or difficulty was not so much with the activities but, but with the different set of things." Right. You have, you know, every child.

7. Is there material which your pupils should have covered before this topic which they didn't?

Possibly more work on addition and subtraction. If we could, you see here, I suppose, if I had had a slower group, I wouldn't have used the larger numbers. Maybe even in the change I would have stuck with adding all the time, and then subtracting maybe, and then maybe I would have broken into actions. So you could adjust it yourself, I suppose. Possibly you could have, you know, a few exercises in adding and subtracting, maybe could have been easier. "We can't provide everything for the variety of situations." No, I know. In another year I might not be able to teach it this way at all. It depends on the children.

8. In choosing the activities, did you use all of the activities, or did you choose some of them?

I used everything. I went through everything that was suggested.

9. Did you change any of the activities? Why?

I suppose in my manner of teaching I surely did. "But you didn't really, when you were talking about changing some things if you had different kids, where you might use just addition or just subtraction, you didn't do anything like that." No, like H, she made a model of the machine or whatever, whereas I just used a card with a plus or minus on it, and then when I read the story they just put a plus or minus so I could check. And, you know, if you have slower working children, you'd maybe have to do more things with them, motivate them.

10. Did you add any activities? Why?

I add a few things, I did that, had nothing to do with this book. We did some magic boxes, and we brought in a lot of worksheets with adding and subtracting, adding across and adding down. We did some graph work, as an extra work sheet, where they have a picture of a cat down here and then they find the cat up here and they have to tell it was on the third block in H, and things like that. "Well this is part of the reason we're having an interview, as we look at the data of what the kids were doing, there are times when it's difficult for us to see where that came from. Now that we know you did these other things we can see." You know, that's a suggestion that the aide and I have talked about sometimes. It would be nice if you had some extra worksheets, some extra activities like that, that we could just run off, because I'll tell you, in our busy day it's a lot of work to get, and you know, another year, we won't have the aide to help us. So it is a lot. I'm not complaining, it's just a suggestion. Did you hear that? "Got it on there."

11. Is there anything else you want to comment to me about the topic?

Well I felt when I sent this topic home, that this is really, we were really getting down to math. You know what I mean? I think the parents will be surprised at what these children are doing. And I showed it to some of the second grade teachers, but they are a little uptight about, children are coming down and not knowing any of the combinations, you know, very little. And of course you're never taught much until 27 and sometimes some of the children are never taught that. And they were pleased to see this. "Well, that's the primary purpose of the revision of the topics, is to increase the amount of practice and work." Would you do any drill with them on combinations? No mastery at this time? "Yes." I thought so too, but someone at this time said there was to be no mastery. You could bring it in as a fun thing. "Sure. I don't think there is anything wrong with beginning at this point to start drilling students on addition and subtraction facts. For most students, I don't think it's--really realtively little difficulty in learning number facts. It's just a lot of practice. It may be a little early for some, but a lot of fun for others. And I don't think there is anything wrong in starting to give them practice if you don't--I guess the only concern that we have is that we don't make it a boring, dull, large part of what they're doing." It should be a fun thing for them, and it shouldn't frustrate them. I've done things like, you know, 1 plus 1, subtract 2, what's your answer? Things like that, and they like it and they pick it up quickly. "I don't think there is anything wrong in adding things down, and subtracting. We do get a lot, really, who are dwelling much more on addition and subtraction facts in later topics. How do you get them, so that they will write their numbers perfect? You think you have that all, I thought I had everyone perfect, and now I'm getting the reversals again. It's really difficult. It's so easy to learn it the wrong way. "Well the problem with reversals is a rather interesting one in psychological literature. Most of the reversals and left-right reversals, not up-down reversals, and most of it is a perceputal problem. If you look at a picture of a cat, it doesn't matter whether, if you look

at it in a slide or a slide projector, it doesn't matter if you have it right or backwards. Either way, the mirror image of it, it's still a cat. And apparently there's a perceptual problem, because when you get to language (letters and numerals) it's about the first time that we've had anything where it makes a difference which way, if we write it one way or another. A lot of kids apparently developmentally aren't ready to tackle that. There are some of my friends in psychology who say, 'Oh, forget it. Let them write backwards for awhile. By the third grade or something nobody every does it anymore.' Well, that's still not a very comforting response." That's not true, either, because some of them are doing it way up in the grades, which is terrible. "About all you can do is continually to reinforce the idea that it does make a difference. And that the part of the problem is that the number is right, the numeral is wrong. That symbol we use." The thinking is okay. "Sure, the thinking is fine, but they have just not . . ." I just say, 'What's that?' and you know, right away they know. At least they've gotten that much, that they know it's not right. "I think it's important that you continually give them a negative feedback, that that isn't the way you want it. Because I think that is where the problem comes up is that . . ." To follow up. If you don't keep at them, well, you'll have also accepted . . . "It's alright so why should I worry about it."

Topic S-1 Teacher M School Z February 22, 1979

PLANNING

1. Do you plan alone or with others? With whom?

Alone.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

I plan by week, but it ends up day-by-day.

3. Do you use resources other than the topic materials? What are they?

Not usually, this is my first year teaching DMP so I'm sticking right to the way DMP has planned it and that's it's difficult for me to plan more than day-by-day, because the activities vary so much in time. After teaching it one whole year, I'll have a much better guide to follow.

4. Are there pupils for whom you plan specially? Which ones?

In my class we have no problems like that. Most of them came with a good mathematical background and concept background.

DIRECT INSTRUCTION

1. How do you decide how to group your students?

Yes, it's not by ability in my class. Most of them are pretty much on the same level. They haven't had great difficulty with anything we've done, so the only discrepancy between their abilities is maybe a--some of them can do it a little bit better. A little faster or who has more background in math, so randomly is always the way I do it. I'll check the students who I think need a little bit of help, but I don't put them in any particular group.

2. Does your grouping change? What induces the change?

Yes. Day-by-day; just for variety so they're not always working with the same child.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

I always do it teacher directed first. I think the activities in DMP are good, but they all need instructions. You have to set a pattern. Especially the station work. Now they are at a point where I can explain a station, go through it one time with them, and they can go on their own with their paper and pencil and go to the different stations. For the first semester it was, we were all at one station and then we moved to the next station,

we all did our work then, and then went to the next station because we have a lot to expect of a first year student.

4. How do you decide how much time to devote to a topic or an activity?

I don't. I wait and see how well the children are doing at the activity and if they are picking it up rapidly, maybe we'll only spend a few minutes on it. If it seems like they're struggling I extend it. Being my first time teaching it. "You have a fixed time for teaching mathematics, you don't go over that?" We can't. Not with our instruction--not with the multaic study, we can't, and that is very difficult for DMP, because there were a lot of times I wanted to stay 15 minutes to finish up because some days we'll have a whole paper done except for maybe two problems. But they're problems that need more time. "Do you have any problems in planning--where you think you are going to cover so much and then cover all of that and then other times you think you're going to cover so much and get all done early?" Right, that happens often. I have enough things up my sleeve--if it doesn't take that much time with first year students you can always correct these numbers, there are always games of numbers you can play, or the left-right concepts, things like that I'll put in for the last five minutes. If we don't cover it, I just extend it to the next day. I don't have a year plan at this point for math--what I want to accomplish. I will slowly take it step-by-step, and they said I'm on schedule at this point.

5. What type of evaluation of students do you favor (mastery or not, low level or not, other)?

Like I said, the children that I am working with are very good students and usually do very well on the evaluation so I don't have the experience of working with children that are struggling with this kind of program. It's obvious way before they take the evaluation that they are going to do alright. I'm confident of it.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

Vital. It's probably, after learning your numbers at this point, this is the topic that none of the children could miss. They've all got to master it. Or at least the idea of taking away and adding on to groups.

2. Which activities in the topic do you feel most useful?

The only one that I did not do, which was optional, was the one with the weights and the scales. Adding and taking on. Only because of the time factor. It was very hard for me to set it up coming from reading. It involves a lot of time to get them to go to each scale and I found that I did other balance--it took too much time, at least with my children that I'm working with now--it would depend that they had a good grasp of what we were doing. Almost to the point of mastering. I did not do that. They loved the stories and the story problems and I think that's good because it's every day kind of situation. "Which activity do you think was

most useful?" It's hard to pinpoint one because they started and built upon another. I loved the idea of the machine to start out with--putting on and taking off--they enjoyed it immensely. It wasn't until we started writing complete sentences that they realized--aha, I'm finally doing adding and subtracting.

3. Are there activities you consider unclear?

Not for the children. Except for--some of the directions were unclear. I can't pinpoint one at any time. I didn't know I was going to be interviewed--I could have brought it all with me. There was one page where there were just pictures, like maybe 6 balls, then it would say, 'Sally played with 3 more, write the number sentence' and it was very hard for them to figure out if these 6 balls were Sally's or were they someone elses. Did Sally take 3 from them--you know which page I'm talking about? I made up stories for them to cover, because it was too hard behind the scene. Some of the words in the problems were difficult for some of them just because their reading abilities. And I read them to the whole class.

4. Are there activities you consider superfluous?

No.

5. Which activities do you find very complex to teach? Which did you find very simple for you?

Actually, with my children, this unit probably took less time to do than topics previous to this one. "Were any of the activities so simple that the kids just zipped through and didn't really need to do at all?" No. I think for every student in there, even if they already knew the concept of adding and subtracting, the sheets were good for them to do.

7. Is there material which your pupils should have covered before this topic which they didn't?

No. "Could they handle the numbers up to 20?" We had been writing numbers up to 20 before we did it with DMP--in our free time. That was no problem.

8. How did you choose which activities to use?

I followed strictly unless it was optional and then I would read it over--talk to another teacher who had taught DMP last year, and if she had done it and commented on it then I went from there.

9. Did you change any of the activities? Why?

No, except that I probably gave more oral clues than were advised to in the manual, mostly because of reading ability or that this was such a new way for some of the children in my class who have learned adding and subtracting before they even got here, but in a different way. A different

method was employed. What was nice about S-1 was that then they had to explain to me what was going on and for the brighter children that was difficult because they had passed that stuff or supposedly passed that stuff a long time ago. "They knew what to do but they couldn't tell you?" Exactly, I thought that was great.

10. Did you add any activities? Why?

I usually don't unless there's free time at the end, then I might make up sotires of 10 children in the front of the room. "But it was nothing that you had deliberately planned?" No. I followed the manual at this point.

11. Is there anything else you want to say?

It's hard for me to say at this point, being my first year teaching it. I always believe the first time you use any kind of program you follow it to a 'T' because otherwise I couldn't comment pro or con, so I'm just following it step-by-step and at this point I'm very pleased. I did have some parent pressure at the beginning saying that this was much too easy for their children, that they had learned adding and subtracting, they knew how to sort, they knew how to separate different kinds of shapes and colors into groups and that their children were bored. I never saw the children or a child bored in my class, at least it wasn't surfacing. But I got this kind of parent feedback and now that we are into S-1, I've gotten nothing but compliments on what they are doing. They like the papers that are coming home now; but up until this point many parents were disatisfied with DMP and I just followed--this is the math program we're using here and we can't skip children--topics, you'll have to trust me at this point. And I was trusting the outcome. Many parents have certain time goals in their minds about what the child should be learning. I think that's what I am up against.

Topic S-2 Teacher A School X March 22, 1979

1. How important did you feel the topic was to teach?

It's important, but the concept of part-whole and the way it was done is way too difficult for first graders. They could write the sentences, but I don't think they understood at all whether they knew two parts or one part and the whole. Because I'd ask them the question and they'd go, 'yeh, yeh, yeh.' I don't think they understood it. I think if you're going to do that you can't do it with story problems so quickly. They need a lot of other preparation using objects and pictures before you do it with stories. Story problems are difficult anyway so that concept was very had. Part of it was very easy for them. Writing the sentences where they circled the larger group and then wrote the sentence--that was very easy. The money page we skipped. "Why don't we go through each activity then, and find out which ones to you were the most useful and which ones were most unclear." Activity A--Page 1 was fairly easy because of the pictures, but page 2 was very difficult because it was in story and another thing that's confusing to the kids are when they ended the story problems--they don't have a real clue when it says 'how many are left; how many then; how many fewer' it's harder for them. If it is 'how many altogether' they realize (inaudible) 'altogether' they are going to add. "So the words you thought were difficult?" Yes, because it was so many different kinds of questions and they had to decide whether they would add or take away. S-2 B--it wasn't hard for the kids when I had the children come up to the front of the room and we have seven boys and five girls and I'd send some back, and then I'd say, 'now do we know how many are in the whole group'. Then they could do it when they were using themselves and doing it with objects, but when they got to stories it was just the pits. They just didn't understand it at all. S-2 B was a pain. S-2 C is the one that we skipped, I think, yes. That was the one they told us not to do. From then on it was much easier. The one with the pictures and finding the difference, that was fairly easy for them to do. "Do you think that was good for them to be able to do that, though? Or do you think that was just so easy that it didn't really . . ." No. I think that was good for them. We did this one (E) instead of doing it at stations and having each weigh the objects, we weighed the objects together. I had the solids up there and I would have one child come up and, so that everybody got a turn to come up and weigh, and then we did--they wrote the sentences themselves, but we weighed the objects together, so everybody would be working with the same number so--there is really no way for me to really see if they know what they were doing--so we did it that way. I modified that a little bit. The last ones that they just solved were very easy. This one--the way of the puzzle--this is a little picky. There should have been dark lines under here so that they can see where to cut it apart. I put those in because I knew that we would have a mess. I could tell where they should have been, but they couldn't. Another thing that was very hard for them were the families, sentence families. "That was G, part 2?" Yes. That was very difficult for them. This here, where they had to match the ones that were the same, that was easy; and this one where they were solving the families, but when they had to write their own sentences, that was very difficult. Some of them caught on, but we did it one day and it really bombed and we did it again the next day, and the second time and quite a few of the kids caught on. Some of them couldn't get the idea that the only numbers you could use were the ones that were there. Like they would sometimes add 3 and 7 and get 10. They would use 2 of the numbers but not the third one. So that was very difficult.

Validating was not hard for them to do--no problem. The last two were very easy.

4. Are there activities you consider superfluous?

No, I don't think so.

5. Which activities do you find very complex to teach? Which did you find very simple for you?

The part-whole--if they were going to do part-whole that should be a whole--there weren't enough lessons in preparation--it was like two or three and it wasn't, like, at the end--you weren't even talking about part-whole. I think the kids need more experience with the, using themselves, using objects, and more of kinds of lessons before they start writing the sentences. I think that's a very difficult concept for kids in first grade. I'm not so sure it couldn't be postponed until later. "I know you mentioned some of the activities were very simple, were they easy for you to teach them?" Yes.

7. Is there material which your pupils should have covered before this topic which they didn't?

No, I don't think so.

8. How did you choose which activities to use?

I used all of them except the one that they told us not to use. I left out the money one just because the switch from just plain numbers to money and its value is very hard for kids if we haven't done any specific work on money and we haven't done a money unit which I'm going to do later. I think it's much easier for the kids then.

9. Did you change any of the activities? Why?

The one with the balance beam, because the balance beams just are not accurate enough. We did it. I had individuals come up and the kids weighed the objects. They each got a turn to weigh. So we were all working with the same numbers when we wrote the sentences. It's also confusing if they're each soing it on their own and somebody gets a 20 and somebody gets a 21--and they look at the kid next and say 'Oh, I must be wrong.' So it's easier for them to understand.

10. Did you add any activities? Why?

No.

11. Is there anything else you want to say?

I just think the whole idea about sentence writing would be a lot easier for the kids if they had that old 25 equals 18 type of thing. The kids understand so much better what they are doing. If you teach that topic--it's my favorite topic in the whole thing because the kids really understand it themselves.

Topic S-2 Teacher B School X March 23, 1979

"Let's talk about the switch from S-2 back to 25." I guess the topics you changed in the DMP were my favorites. I found myself, in teaching S-2, I was doing something I felt very counter to what I believe in. I was teaching something that my children couldn't possibly understand. I got beyond the point where 'was I teaching it right, was it me, was it this, was it that,' I got to the point where I knew that was true. What I was doing, whether it was my fault, I didn't care anymore. All I knew was I had to call a halt. I think 25, as I say, is the best way to teaching the missing addend. It is also, to me, the best way to teach equalities because it is designed so it gives a varied approach, for instance, in area, weight, height, and numbers. Now, as I told the observer yesterday, this calss (and I've taught this seven years) has had the hardest time catching on to this than any other class. So, in retrospect, I had to say to her that this class maybe they would have caught S-2, I don't know. "It's funny. I happen to like the 25-27 sequence, the equalizing and so on. That way, I sympathize with you, 'cause that was my idea several years ago when the development of those topics I thought were very good--unfortunately it's something that we have more criticism about." I know. I don't understand it. It would take a lot of time to set up, I always thought it was worth it and I still do. These kids are getting it now.

1. How important do you feel the overall topic is?

25? I think it is vital. I think equalities are vital. "Sentences and?" Yes, I really do. The whole idea of equality and they learn a communicative property too. It's very visual. And since children learn the major part of their learning is visual, I think it's very important. "So as you teach them you expect them to be able to respond to visual stimuli, visual problems?" Right. "Way too much verbal stuff in the replacement topic." I think so too, and I think your language is complex because it's for beginning readers. It might be that I'm having difficulty with this group because they are--I don't want to--they're learning very well but I would say that they are a few months behind other groups that I've had. And they get hung up on language like altogether, difference, a few more words that might mean the same but are different. They need more repetition.

2. Which activities in the topic do you feel most useful?

I think the ones that deal with concrete materials. Now you have a lot of those in the topics that were past--the 25 one. We can vary it a great deal--we can walk around the room, we can use weights, we can use measurements--all mean the same thing and I think that kind of variety in concrete materials is better than the variety in language. That's how I would contrast it.

3. Are there activities you consider unclear?

Yes. I think that whole, part-part-whole, is very difficult for children. You had a combination of things. First place you had numbers 0-20, we expose the children to 10-20 in 24, we mastered up to 10, but we exposed them to what the number means as far as objects, but they didn't learn to

manipulate. They had to write the sentence--they had to decide whether they add or subtract and then they had to solve it. That was too much for my children to do. It was too many steps plus the language was complex. They could not read the problem themselves. I know there is a disparity and I find that very interesting. I believe you, when you say that you could ask the child and they will do it in their head and show you the materials, and I think that's a very interesting phenomenon, they cannot do it when it comes to the written work. I've thought about that a lot. "It's that transition from the physical to the written is a very difficult thing to do. By the third grade they should be able to do it well--it's the end of first grade going on to the second." I wondered if it was because language is such a sophisticated skill when kids are 6, you know, they've had it for four years, but the abstraction and the writing, they haven't had that long. I thought that was really interesting because I liked what you said that night--and I agreed with it and that's why it bothered me terribly that I couldn't . . . "Well, it's that whole transition that we primarily are trying to study, and I think we're convinced that the approach that we took when we developed DMP made a lot of sense. There are some problems with it, not at the level which you're talking about, but as you get on toward third grade where you want to deal with, particularly, different representations of kind of part-part-whole relationships. Part-part-whole is very nice for both adding and subtracting and introduction of certain fractional ideas when you are dealing with parts of a whole, so on, logically it makes a lot of sense, but it's a static situation rather than a dynamic where you'd log the equalizing where you're putting with or taking from in order to make things equivalent, and there just isn't the transition from one kind of problem setting to another. That is something that very few people have really looked at." Yes, well, I really liked what you said. I just don't see that that really transferred, or when you transfer to the paper it just didn't go for my group. It was too difficult. As I said to Michael, I've had a rougher time teaching 25 than I've ever had, but they are getting it. I'm going to follow that up--I like that. "Since you didn't really teach the topics, I can't ask you much about those." I just taught a few of them. I never got to what I'm going to do that after we do--after we finish 25. They'll do those review questions. It's interesting, my children did pretty well on the S-1 inventory. But all your numbers were 10 or below. "We talk about revising S-1 and clearly one of the things we do is a lot more work with numbers smaller and only have one or two at the end that are larger." I know that you wouldn't test what you're sure of, but still if you're going to put in that--almost all of them had big numbers. "You've been talking about this particular group. You have typical expectations about first grade's . . . ability to read or ability to . . ." Yes I really do. You want to know about reading or math? "Both." Well, reading, I would like to think of my children before they go on to second grade can read a primer well. Which would mean they've gone through the pre-primers and that would be the first book of any substance. From then on that would be my minimum goal and then I have primer, reader, and then for the--I have one child who is way into advanced work and is doing almost entirely comprehension. "The mathematics activities don't necessarily jive with the reading level." The mathematics activities that you gave, no. They do not. "They expect a higher level?" They really do--an upper, almost a second grade. "In terms of finding directions or following." Yes. It's very confusing. I'll tell you something about the beginning readers. When you read, if you don't know a name you skip it, go to the meat. They

can't do that. They want to know what that word is. It's an interesting thing, they've done that with the reading book. It's a similar problem because in their attempt to make reading books less sexist they have names like Lolita and, kids cannot pronounce. "When students are reading materials like that and they do run into reading difficulty, what do you do?" We just tell them the word because we don't have . . . "Do you expect them to ask you?" They do. "Or the student teacher, or M gets asked that." Anyway they can get it. "Do you have similar kinds of expectations in mathematics? Is there a level of . . ." Yes. I like to think that they are familiar with the numbers, and from 0-100. They know what they represent in objects--that they can do the operations of addition and subtraction 0-10, with some good accuracy and speed. That they are pretty, approaching that in 10-20. And then I, the way I've always worked math as when I do DMP I do the inventory at the end of each topic and then any child that does not get mastery or progressive, we do a mini unit with that child on the topic and then we retest. "You've been teaching DMP how many years not?" I guess seven. "I understand you will not be teaching DMP next year, is that right?" We will be, going to be--area adoption and they don't seem to be . . . there is mixed feeling in this school. I don't know where you are on the adoptions, do you? "No, I don't think very high. I think there's been a lot of dicussion about it. It's in part an experimental program and part it's hard to teach and part it's expensive." It does require more teacher time. I understand he said no one does 22, but Teacher A and I have always done 22. I just changed the water to beans--it's just really good for kids to imagine. So, it does require time. "Do you look forward to teaching something else?" I don't know. I'll have to see it. I don't look forward to any worksheets everyday, I'll tell you that. I like the variety. I will probably do a little, because with DMP I did a little review work of my own too. You'd be surprised by the time they've got 25 and 27 and some of 29, which I adopted . . . "I think part of the problem we had with lots of other teachers with the whole sequence in equalizing was basically just the time that it took and not really the individual didn't understand where it was going or what, but . . ." I don't know. But I had children put in numbers by themselves. That's what I call good. When you don't have to stand up there and put it on the board and they copy it, they put in the numbers themselves. ". . . asked the last time if we were planning to replace the 25 and 27 of S-1, S-2, etc." Teacher A and I both feel the same, I think she likes it as well as I do. We had two fans anyway. "It's a mixed group. There are several people like you, several. We are planning the same thing on S-1 and S-2. We've got a couple of teachers who think it's the best thing that has ever been written." In fairness to your program, this was only in relation to this class. I guess I didn't, I do have some guilts, I don't like to screw everybody's program but I cannot teach something that my kids can't--it-s really . . .

Topic S-2 Teacher E School X

(INCOMPLETE INTERVIEW)

Yes, I think it was good to show them that. On page 18 the reversals of the . . . that's not commutative. When we got into families, I think this is something that was very hard for them. Some of them got it just like that, they are really sharp. But, the other ones, even if I put all three numbers up at the top that they could use, like 2, 3, and 5, and say you could only use these numbers and have to make two minus sentences, two plus sentences. Again, if we did it all together as a group, they really seem to understand, but when they tried to do it by themselves it was just really hard. "So you do try to let your kids work on their own? I do. Page 21 was fixing up things. I think that is always good for them to be able to look at it and see if it's wrong and fix it. Some people think that is bad, that you shouldn't show them that. I think it is okay. "Your kids did it okay, though?" Yes. And these are the cards. "How did they get along with the . . .?" This we did individually. This is hard for them to understand these things. The measuring . . . I didn't really like those very well. These are all the cards. Not all of them had a chance to do these, these I used supplementary. I can go back through here and tell you a few of the things that I changed. Basically, there were some real good things about this topic; but, basically I thought it was not good. "Can you be specific on that?" Well, just pages that I told you about, the family concept was much too hard. I think they can handle what's the difference if they see two numbers 7 and 5 and they are asked to find the difference. If they can handle that they know that 7 has to come first minus 5, they can do that. But, the part-whole, I guess maybe that . . . And I'm having real bad feelings about S-3. I'm just starting that now. I only did one thing but they just really didn't get it. I skipped part 3 and activity that's 2-B because I just could not do that. It says, 'Have each child secretly prepare a container by putting 0 to 10 cubes or links of one color and 0 to 10 cubes or links of a second color in a container.' I don't have that many containers, I just thought that it would take just too much time, it couldn't be that valuable for us to spend the time to do that. Although it sounded like a fun thing. I guess if I had used the aide more effectively I would have been able to do that. "Do you think you will use her more?" Yes, I could have. Again, we don't have that many containers that are free. Activity S-2C: I tried to follow this pretty much like it is written out, but S-2C involved measuring length and weight. I did not do the weights again because I have very poor luck with those balances, so I don't ever do those things with weights, which is too bad. "You just find that they aren't accurate?" Yeah, they really aren't. They do the length part of those. I think we got a note about those, too. "You could have skipped those. In fact, it was suggested that you skip that one." I had planned on skipping it even before that. The families was rough. I had a sub on that day too, that didn't help too much. Having someone else trying to do it, but, I tried to do it over again with them the next day.

7. Do you think that covering something else before this would have made it easier?

"Did you feel that families didn't work because there was . . .?" No. I just don't think they are ready for that. I don't know why. I don't know what we could have done before that, though, because I really feel that I gave an adequate presentation of it to them before I had them work on the . . . I made a house, and we did lots and lots and lots of examples on the board.

11. Would there be anything else you'd like to talk about?

I don't think so. As I say, I have a real concern about S-3 right now; but, I've only done the first couple pages so we will wait for that.

Topic S-2 Teacher G School Y

(COMES IN DURING CONVERSATION)

2. Which activities in the topic do you feel most useful?

I liked the balance they had between the story problems and the computation. I really thought all of them were really helpful. I couldn't say that any of them were superfluous or we really didn't need to do . . .

3. Were there any that you thought were unclear?

No, not unclear. There was one that I changed that we can talk about when we get to that part.

5. Which activities did you find the most complex to teach?

Page 20, I think, with their families. With the number families. Where they had to write their own sentences with the numbers. They would introduce other numbers. If the sentence was 5 minus 1 equals 4 they would maybe say 5 plus 1 equals 6. So they wouldn't always stick with the three numbers they were supposed to do. Or they would write 3 minus 7 equals 10 or wouldn't really show the constant understanding of what the sentence was. That was the most difficult.

6. Which activities did your kids find easy?

Just the basic drill computation they found easy. Much easier than the story problems. "Okay. So, the story problems were difficult?" Right. The ones where they had hats--I had a lot of pictorial representation where they had 7 hats, 3 were green and all the rest were red, how many were red; so I did a lot with them on this sign--this is a missing part and using the pictorial representation to show them this was a missing part problem 'cause often they would want to add the whole to one of the missing parts. They would say "8 plus 3" and do it that way. So, that part was difficult for the children. Finding the missing part and recognizing that sentence, the story problem as being a missing part problem.

7. Was there any material which you thought your kids should have covered before they got to this one?

Just on the coins and the money pages--they didn't all know the coin equivilences.

8. How did you decide which activities to use?

I basically followed what the manual suggested. I made one change on the cards activity--when they give you those cards. It's C, S-2 C when they give you the set of cards and instead of doing it at stations, I looked at the problems and I was really pretty sure the children would have trouble doing this independently at stations so I broke the kids up into two groups and did it. Did the cards with half the group while the other children were doing some seatwork in their books. And then I switched and took the other

half. So we did it as a group and they did alright with my direction as a group--but I think they would have a lot of trouble doing it at a station. The top, the really top math students could have done it but I'm sure my children would have had trouble. "And you say with the families the top kids could have done it?" Right, right, definitely. The families were hard for them. They could see it when they did it together, but they would make mistakes on their own and they had a hard time on that.

9. Did you add any activities?

Just, I reinforced, I would maybe make another page that was similar to the one in the book. I would do that. I would also do the review before I gave the final test on that, because by the time you get to the end of the topic you're doing basically computation and there isn't much on the story problems anymore, so I wanted to go back and review the story problems. That was just before we did the test--'cause it had been awhile. "Okay. You mentioned something about the puzzles page you found difficult for the kids to cut it." They understood what they were supposed to do but it, there was no way they could get that page out of their book the way it was put together and I, the lines were not clear between the puzzle pieces. So I had to remark all the lines on all the puzzles so they could cut them out or they would get all mixed up. But as far as following the direction, they had no trouble with that--it was just the way it was set up.

11. Is there anything else you would like to add?

No, I just think it was really an excellent unit and I liked it very much. The kids really enjoyed it. They liked it too. "And you are going to do one bit of reviewing before you do the topic inventory?" Right, right, right.

Topic S-2 Teacher I School Z

1. How important did you feel the overall topic was?

I thought it was important, adding two-digit numbers and getting them, you know, prepared for, um, . . . , getting them prepared, really for regrouping later. But I thought this was a good prerequisite for that.

2. Which activities did you think were the best? Mose useful?

The ones that were most useful were the ones involving well counting by 2s and 10s and 5s and that kind of thing seemed very helpful. Do you want to know like part 1 activity A-1 A and things like that? "If you know, yeah." Okay. And they enjoyed counting by 2s or 10s, counting upwards and backwards. Okay? "Um-um." Um, when we used the overhead (as suggested) in part 2 of activity A-1 A, that seemed to be beneficial. Counting sticks worked much better than anything else in terms of manipulating kinds of things. Also cubes. "Counting sticks better than cubes did you think?" No, I liked them both. [mumbling] Another good part was part 3 of activity A-1 A--when the children had to determine which 10 the number was closest to or which 10 it was between and I thought gave them a good sense of 10s and 1s. I can't remember which activity it was, but when we used the chart. From the very beginning that was filled in, you know, with the numbers from 0-99 or whatever it was. When they could see a pattern, that was very helpful. "Couldn't most of them see patterns?" Well, I'd say half of them could. They liked the stories of super. . . just in terms of getting them interested and involved. "So the content of the stories does affect their interest, at least?" Yeah, yes, I think so. I guess that's all I can think of. "Okay."

4. Did you think there were any activities that were unnecessary?

I don't think there were any that were unnecessary, but I do think there were some that were difficult.

6. Which ones were they? [Which activities did your pupils find difficult?]

The things that I find difficult, at least working with the children, is, I know they have to write the vertical, the chart, the sentence in the vertical form and it's very good practice for them. Some of the children, when you require all three they tend to get confused or they forget one of those kinds anyhow. "Do you think the chart's still useful?" Yes. Because that way it helps them to see--they look at the chart and then they know what to do. After working with the chart for all the parts. I don't think their writing is best. "Any other difficult parts?" I had something; not extreme difficult, I'll look for it.

3. Were there any that the directions were unclear or you had trouble carrying out?

"Because the directions were unclear?" Well, I guess on page 8 of the manual . . . that was a little difficult--now maybe if I read it over again, but at the time I found it difficult. And when the children were supposed to write

numbers on their left palms and things like that I guess I just didn't. "Did you do it, then?" I had them hold squares of paper in that hand. "Okay, that's a good idea."

5. Were there any that you found complex to teach?

No. I can't think of some.

6A. Which part did the kids find really easy?

Um, without words problems and two-digit addition. They could do those alright--as soon as they figured out that you add up the 1s first, then the 10s. They seemed to like that. "I'm assuming that they learned that very quickly." Yes, it was. The things that were hard for them were writing the grid, for them to keep writing 1s and 10s. I'd let them write 10s and 1s the first and then I'd have them write T at the top of one column and an O--it's just sometimes it's a lot of pencil pushing. "So actually the little physical things that we don't really think about make it a little bit more difficult for them, huh?" Just more time consuming or they get, they get bogged down with the activities. I mean they enjoy the activities, but they get bogged down . . . [talking over each other].

7. Did you think that they had covered all the material they needed before this?

I think so. "So that wasn't a problem."

8. Any activities you didn't use?

I did not use the Bingo game at the very end. I don't believe I did. I used one where they had a lot of fun. This Bingo game here--number 34. "You did not use?" I did not use that--but I did do the other games. "Which you did say they enjoyed?" Oh, very definitely. "Right in the same page 32?" Right, they had to use copies of their student booklets. They had to fill them up with cubes and dice. Two times. We never completed it though--even with the two dice. "Is that right?" Um-um. Some did, some did.

9. Did you change any of the activities?

We pretty much stayed with them.

10. Did you add any--activities?

I just did in reviewing before I gave the topic inventory. I went through, I mean as a review, I went through and just picked out stories and had, gave them a paper with a chart on it and everything and had them, if I gave the story verbally, then them reading it, then they had to fill in the chart, the vertical part. "Oh, yeah." It was using everything from here though.

Topic S-2 Teacher L School Y

1. And to do with the overall topic in S-2, how important do you see this topic in relation to other arithmetic topics?

Oh, I think it's very important. May I just . . . on that. I think it was a little difficult. Of course, again I have the top group. They had difficulty. But they were interested. I thought there was a high . . . We changed the person that came in. You know? He was in my room, then another man came in and I really felt that for about a week it kind of threw all of us. I don't know why. The children weren't the same, they'd like they didn't know anything. And again it seemed they, we got back on our feet again and then things went pretty well. But I don't know if it was the materials, if it was the way she reacted, you know, did it in a different way or just what. But I noticed that. They did, you know. I did quite a bit of extra work along with it to try and get them to uncerstand what they were doing, 'cause I thought it was important.

2. Which activities did you feel were the most useful?

Oh. "Or would you rather go through them?" No, that's okay. This is fine with me. Now we omitted this one. Yeah, that one, there was a note on the book that told me I [inaudible]. All right, I thought the story problems were good. But I thought there were an awful lot of them. "In all the activities, or just in the beginning ones?" Well I thought it was very hard for them, and I was thinking of my, I teach a slow group in my own room and I was thinking they couldn't even read this, so the teacher would have to go step-by-step. And it was good for my children but I thought we started out quite difficult. "With the story problems." Yes. Maybe if we had, I don't know . . . This is just my idea, but . . . from anyone else. Maybe if we had started out with some of the computation first, and then went in gradually to the story problems it might have been a little easier.

3. Were there activities that you thought were unclear?

Well, I was glad we didn't have to do the ones about putting the chain around the chair and that, 'caus I thought that was . . . "Would have been difficult for them." Yes.

4. Were there activities there that you think shouldn't have been there other than one that you mentioned?

I think relationships were very difficult for them. "What sort of relationships?" Three plus 4 is 7, 4 plus 3 is 7, 7 minus 4 is 3. "Oh, putting the sentences together, right." Yes, doing it on their own, and then one other. Taking the whole and finding the part. I thought that was difficult. You had to do quite a bit of dramatizing with them, actually have them act it out. So that they got the idea. "Did that help?" It did help, yes.

6. Were there activities that the kids found very easy or ones that they found particularly difficult?

No, I can't really say that anything was really easy. But they didn't have as much trouble with this type, the computation, and crossing off false answers. That didn't seem to bother them as much.

5. Were there ones that you found difficult to teach?

I thought the whole and the part. And then I got the idea of giving them like 20 cubes and then working it out with the cubes and then we used drawing pictures on the board and we sort of, you know, things like that helped.

7. Is there material you think your kids should have had before they got to this unit that they might not have had?

No. Oh, what do you mean? This year, or . . .? "This year, or . . . well, they're in first grade. Is there anything earlier in the year that they really should have had in order to do this topic?" I'm wondering if it would have helped them if maybe they'd had some--again my thought--easy computations to help them know like 2 plus 1 is 3 and sort of stepping into this. Because we started right out making a change, didn't we? We went from plus, and then we went to a minus. And, uh, it seems to me that it was a big jump. "So you would have liked to have done all the addition, for example?" Kinda; worked into it a little bit easier. Maybe not as much, I liked doing addition and subtraction together because there is that relationship. But maybe just a little simpler. "Smaller numbers perhaps?" Maybe. Umhm. Of course, I guess you could do that if you wanted to.

8. Now you said you skipped a few of the activities. How did you decide. . .?

They had a note on our . . . "That you didn't have to, or that you shouldn't do it." Yeah. They had that we shouldn't do it. They had got that from what we had said before I guess. "Were there any other things that you omitted or changed?" No. We did everything that they suggested. The stations, everything.

9. Did you change any of the activities?

No, except the layup maybe or some that I used myself. One thing that kind of bothered me when I was working on it. I shouldn't have let it, but it did--usually nobody in the room bothers me but I was always sitting here looking at the clock and they thought, uh-oh, he's waiting too long now, I should be working with him. And, he's waiting for me to come and help him and I was thinking this was being checked against me. And, you know, it rather frustrated me, but then I thought, well you just gotta put that out of your mind. And then I asked her, then I said just what are you doing, and then she says, and everyone ever explained it to you. And so they . . . and so then I just thought, okay, forget it. "Do you understand; I'd be gald to explain it to you if you'd like."

10. Did you add any activities to what was in there?

"I know you say, when you taught them you adapted them to yourself, but . . ." No. No. I stayed with the book. We did extra worksheets and things. "What kind of worksheets?" Okay, we did computation. We did, oh, something like, um, they had a key--2 and 3 are 5--and then they'd look up, well, and 5 would be x and then when they got through it was 'Stop, stop, look at Bob stop,' and I don't know how it went, well it rhymed, and they liked that. That was enjoyable. And then we did a lot of worksheets along with, because some children get through so much quicker and they were adding and subtracting. Some word problems that we have gotten and, oh we did, um, what are some other things? Graphs, we did some graphs that they'd have and then they could add a color or something like that. "They were mostly though in connection with addition and subtraction?" Right. We didn't go away from what we were doing.

11. Okay, is there anything else you wanted to tell us about it?

Oh, let's see. I can't think of anything that, you know, we've talked about some things I guess. But to me the children should really have a very good background. What's going to happen in S-3, that's what I'd like . . . "It's really sort of a formalization of what they've been learning in S-1 and S-2." I see. Will they be adding that other way then, or you know, they made me . . . "Lengthwise? I can't recall now." Oh, okay. "But what it really is is, for example, we've called these units preparatory in the sense that we're not too worried if every kid hasn't gotten it all down. But by S-3 you really expect the kids to be able to, to do these kinds of things." Now will they start out with this in the fall in second grade, or . . .? "There will be new units. S-4, 5, and 6." Yeah. I'm just wondering. "I don't know if they'll be the first of the year that they'll be there, but there will be three more sets." You know the aide has been such a good help. She's been terrific. She's done a great job. "Oh yes, I'm sure she has. That's what I've heard. I know it would be very difficult without an aide to do all this." Oh yes. You know, there are days when I have spent like an hour, hour and a half in preparation, reading and planning, and it's been just fine to have someone come in and set things up. "Do you find the information in the teachers' part helpful?" Yes. When I first picked it up and I was reading it through, I got a little shook because it just seemed that there was so much to read and go through. But then when I started to put it down to the lessons of the day, then it went better. And, you know, next year it will go much better. 'Cause I'll have better understanding of it. But, um, it didn't tell me that much. There was something you said about plus and minus, and I can't quite remember, we had talked about. Maybe the other girl said it. I thought they got writing sentences very well. I tried to hold them to a certain procedure, you know, so that . . . yeah, I don't know what it is. We haven't done too much with plus and minus and that type of thing before. And maybe it could be built up a little bit before we jump into this one.

Topic S-3 Teacher A School X May 23, 1979

1. How important do you feel the overall topic is?

I think the whole concept of whole and part could just be left out. It is way too difficult for first grade. When you get to the end of the topic--just plain old drill and the math--is what it was. That's important. The part-whole was just too difficult for a lot of my kids. They never did understand it. We did the little chart things together and then they wrote their sentences and some of them knew what to do after we had the chart filled in, but if I had them fill the chart in themselves; they wouldn't have know what whole and part was.

2. What activities in the topic do you feel most useful?

I think this whole topic was a bummer. I didn't really think there were a lot of useful--this topic just didn't have much in it, it went to part-whole and the end was just drill and math sentences, and that's the kind of thing you do with seatwork. I think there are more important things I could be spending my time on. "What would you have spent more time on?" I would have done some more work on the math facts, but with my own worksheets. I wouldn't have used part-whole, I would have done another equalization topic, the symmetry topic. I haven't had time to do money yet. There are a lot of things I could have done.

3. Are there activities you consider unclear?

I think part-whole, the whole concept, is too difficult for first graders. Especially with story problems. I would say that we would read the story and I'd say, "now do we know how many are in the whole group?" Some of them, yah, yah, they had no idea. Some of them did. I would say probably six who really understood it and could read the stories, and they probably could have done this all on their own, but for the majority of the kids that whole concept is too difficult. "Do you think the majority of the activities were hard for them to understand?" The ones at the beginning--all of the ones on part-whole were. When they were writing the stories. The ones at the end were very easy. "Do you think they were too easy for them? There really wasn't much to it except to just give them the pages and have them solve the sentences. "You didn't have any trouble with those?" No, because we've been doing addition and subtraction for quite ahile now. "Did you find the part-whole hard to teach?" A little bit, because if the kid doesn't understand it, it's very hard to explain it to them. They'd say, yah, we know how many are in the whole group; and they didn't understand the whole concept and I think within stories sometimes it's hard to tell which is the whole and which is the part.

5. Which did you find very simple for you?

All the activities at the end of the drill work were very easy. I felt that if they were going to give a time test for the topic inventory, they should have had some timed activities in the topic. Given the kids a couple of activities or drill sheets where they were timed. They had no idea of how long six minutes was and they didn't think it was a very long time. To them six minutes--they thought it had to be done like that, so some

of them were really hurrying because they didn't think they had enough time, and I think if they would have had a couple activities in the topic that were timed, then they would have--they all did very well but they just . . . If I had it to do over again I probably would have made up one myself.

7. Is there material which your pupils should have covered before this topic which they didn't?

I don't really think so. I don't think there is anything that would make it easier for them to understand.

8. Did you use all the activities?

No, I didn't. "Which ones did you leave out?" S-3D. With the dice. "Page 14." That one they just did on their own. The one with the Rocks, S-3D. "Page 15." I didn't do that one. "Why did you decide not to do that one?" I thought it would be too confusing for them. And, besides, when they weigh things, they don't always have the same answers and it's hard to check to see if they really . . . so we skipped it. We had 16 with the graph, and we did the money one. But the money one for some of my kids was hard because we hadn't had a money topic and some of them had some of the sentences wrong and the one with the bugs; that was too difficult for some of my kids. "Page 19." The kids who I really feel could go ahead and do that did it on their own. I didn't expect everybody to do that. Another thing that is really hard for them . . . number sentence families, page 24. We did it in S-2. Some of the kids caught on right away, and some of them had a horrible time. They just didn't get the idea that they could use those, only those three numbers. They would use two of the numbers and there would be a difference. "Were there any other activities you didn't use?" Those were the ones. Some of them I used, but just with part of the class. Not everybody. "Can you point those out?" The bugs, page 19; the dice, page 14; page 24, didn't do with everybody. "This was mainly the kids who got it in S-2?" Yes.

9. Did you change any of the activities? Why?

No. We did some addition and subtraction in the morning as seatwork. They would fill in the answer and color the space and that kind of thing.

10. Did you add any activities? Why?

Right now they are doing a lot of addition and subtraction work in the morning. They usually have at least one sheet that is addition and subtraction. "By the morning, what do you mean, is that a separate class?" In the morning they have seatwork and centers and we have reading groups. Independent work. That's usually part of their independent work.

11. Is there anything else you want to say?

I'm glad it's over. I really didn't think these topics were very well written. My kids did the equalization topic and did a really good job. "That was last year?" No, they did it this year. They did it when I was

gone with the sub, and they really understood and they do that when writing the sentences is done in sequential steps. First they do it with the pictures, just drawing, then they have the sign and they change the pictures and then they put the sign in the box next to the one they are going to change and then they write the whole sentence. Where they started out they wrote the whole sentence right away. I don't think it was sequential and I don't think the kids really understood it. I much prefer the DMP as it was. I hope this is not what they are going to do. "Suppose you had to teach this topic again, is there anything you would change? Not taking into consideration throwing out the part-whole thing." I would try to figure out a different way to teach part-whole so they could understand. There must be a way that you can do it. I thought these boxes were a little confusing. The kids needed that. "You don't think they understood what those boxes were saying to them?" Some of them didn't. If I had to teach it again, I wouldn't. I would teach DMP the way it was, and I would teach the 25 and the next equalization topic and symmetry topic. I really don't feel my kids are as well prepared in the second grade for math this year as they were last year. As far as I was concerned, the thing that I really like about DMP is that the kids really understood what they were doing. When they got to sentence writing they really understood. "Have you seen any of the results yet, from the achievement?" When I watch the kids work in class I don't really think that they have the understanding. The majority of the kids, I always felt, really understood the sentence. I think that once we fill in the chart that a lot of them . . . they knew that if the bottom boxes were filled they were going to add. The top one and the bottom wasn't filled in they were going to subtract and I think it was more of a grow thing than really understanding. "I haven't seen the achievements tests, so I really don't know what it looks like. Does it have these kinds of problems on it?" No. I really don't think that any inventory really checked these kinds of things. This last one was just a time test on the facts to 10. The one before that was writing sentences and solving them and then the second part was just solving number sentences. I think that one probably came the closest. "Do you give any achievement things on your own?" I just used what was here. I really did want the other. "That's the kind of thing we're looking at, how teachers react." I think a lot of teachers, when they initially use DMP, they look at it and think, oh my god, all this work you've got to set up all these stations. I think the first year you use it it is like that, but I think after you use it . . . I don't have any problems. I don't think it takes me any longer to prepare for that than for any other math class. It's a lot easier to have a workbook and you just whip out the pages and staple them. I think that's the reason a lot of teachers look at it, say I'm not going to do all that, I'm not going to get that stuff together, but once you do the first year it's so much easier. I really don't think it has taken me that much extra time to prepare for it. I think that this was an attempt to do away with some of the things that I thought were really good . . . the stations where they would move around . . . it really wasn't much studying up and independent work. Some teachers look at this and say this is much easier, but I don't think it's as good.

Topic S-3 Teacher E School X

1. How important did you think the overall topic was?

I thought it was important because I think, am I right, because it's the basis for the, for doing the sentences with the boxes in themiddle of the sentence. And, before, we had these research topics those topics came sooner and I think this was a good preparation for those topics. "Did you like that change? The fact that the box had always been on the right, or did you feel that it was a better way of teaching with it?" The box always on the right is much easier for them and it's always been hard to teach them the box either in the first or--I don't know. What are the correct terms for them, in the beginning. "Well we can talk about them in either the first or the second position." Okay. And I also think that the way this is set up with the boxes, what do you call this? "Oh, the part-part-whole." The part-part-whole, right, was really good. I was very frustrated thought, because I somehow didn't think they were ready for it. They just really as a whole group did not get it on their own, I helped them. If I helped them they seemed to understand it, and if we did the pages together they seemed to understand it and could give me the answers. But when they had to read it themselves, most of them. "Throughout the whole topic you found that to be true?" Well, only where they had the part-part-whole boxes. Once it got to these other things they were okay. I think, again, it might be the reading that holds them back and also the, just the wording about 'more than,' 'how many more or less than,' I just, I don't know the answer but I don't think they're ready yet to understand it. They cannot think, if I say 'This is the whole and these are the parts,' they can plug them in, but they cannot read the story problem and figure out which is the part and which is the whole and what the answer should be. "Did you find some kids could do it?" Some kids could, yeah. I would say maybe three or four, five out of the whole group. But for the most part no, no way. So we struggled through the first eight pages and I did several of the pages with them as a whole group then they did a couple on their own. As I say, I like it, it's just, it makes sense to me but it sure didn't seem to make any sense to them. I don't know. I'd be interested to see how they would do with missing addend boxes after having had this, I don't know. I just don't think we did enough with it. So that it'll make a lot of difference, but I don't know. "Now, they used in later topics too, so they will continue to build on that." Well, at least then they have seen that and it will probably help because they have been introduced to it.

2. Which activities did you think were the most useful?

Okay. I guess I already talked about those. Those were useful to the extent that they were introduced to them, but that's about it. "The part-part-whole?" Yes, the part-part-whole problems. So that was Activity A. And I also di a lot of preparing on the board too. I mean I spent a lot of time. I just didn't go into the book, I spent a lot of time going over the stories that are, that were listed in S-3A and B. "Did you pretty much follow it just as it was written?" This part I did, yeah. "The part-part-whole portion?" Yes. "And that goes through?" B. "B." And then on Activity C we started vertical notation. And they did alright on that because they've seen that before in some fun folding things that I've given them. But, when they had to write it themselves; for example, when they had to write it in the up and down form, I thought there would be

no problem, but they got the plus sign, like they would write 4 and put the plus sign right under it and then the 5 and then some of them would even put equal signs for the line and then I, but we worked that through. But it wasn't as easy for them as I thought it would be. But they understood, they certainly understand the concept of that it can be both ways, so that was okay. D was optional and I used student page 14 as an extra activity where they had to throw the dice--that was fun. That's the only thing I did from that option part. Didn't do any of the rocks business. Okay, now, most of the rest of this was just practice in various ways with addition and subtraction and I found that very valuable because it was easy for them for the most part. Page 16 was pretty hard. "Did you decide what it was that made it hard? Do you need more blues than reds?" Again, I guess it was just the 'how many more' wording. And once I went through and said that how many more means subtract and that altogether was add, it was okay. But it was jsut reading this and looking up here and counting and then writing it down--maybe just too many steps for them. "Could be." The money pages again, they haven't had enough experiences with money that that was very easy for them either. "But you did it?" We did it, but it wasn't very successful. The way it is set up on the page, you have this you want to buy, this you pay, they always want to put 7 minus 10, for example. "On page 17." But they got it, but I don't think that's set up very well. I did not do page 18 and 19 because, again, when the pages are set up like this and they have to flip back and forth between one page and another it's very difficult. It's more trouble than I thought it was worth. "Could you have torn it out?" I could have torn it out, except it's real hard when it's stapled like this. We had that trouble before with the puzzle. I tried unstapling the books and stapline back. I figured we could do something else. Then on pages 20, 21, 22, yeah, those three pages were good. Again, they were just practice. They seemed to be able to find the relationships on page 21 and then again on page 22. This was very easy for them. "Good." Then we got back to the families again, and I think I said this last time, families are just not, I don't think first-graders, it was just too hard for them to get all four of those different sentences. And even with this page first, where they could see all of the families and then having to do it on this page--a few of them could do that by themselves. Just let me look through here and see if there is . . .

3-4. <u>Was there anything unclear or that you felt was useless, superfluous</u>?

No. Just what I mentioned about the part-part-whole. Except for the fact that they've been exposed to it, I'm not sure that that was that valuable. They did very well on the topic inventory. "They certainly did, yeah." It was just very easy because it was just, well, if you had part-part-whole families in there it would not be, they would not have done very well at all.

7. <u>Did you feel that you covered everything that you needed to or was there some material that you should maybe have done before you got to anything</u>?

No, they were ready for this. "And Activity D, that was the only one where you pretty much skipped a large portion?" Uh-uh. "And in part-part-whole you added the statement that you did board work and you did add to that." Yes, and I worked with small groups. I let the ones

who could do it go on their own and I worked with the small groups who just absolutely didn't get it. So I had to change that a little bit.

11. Since this is the third round, is there anything that you'd like to comment about? What you've been through this year?

I've enjoyed doing it. I'm not sure I'd really want to do it again. For some reason it seems to take a lot of, well it doesn't take any extra time for me I don't mind teaching it, it was something different and I didn't get tired by teaching the same thing all the time. I'm not sure how much the children have been benefitted from it. I don't think it's hurt them, but I wish had--maybe when I see some of the results from which you have donw. "Which you will get to do." It will be easier for me. I just think they so much more emjoy those little topic books than they enjoy these. They kind of dread, I don't know whether it's the format, the way they look, whether they seem longer, or what it is--I probably should ask them, I think I will. "That would be interesting. If you find out anything let us know." Maybe you should get from them how they feel about it. Then, they don't have the other ones to compare to, either. You know, like topic 27 or whatever it was they did. But it just seems like it was long for them, they weren't very excited about it. They would rather do fun folks--which that is just drill, practice things. "But they find them more interesting?" They're fun, they're puzzles and there's coloring involved. It's not the same thing. But on the other hand, you have a lot of varied activities. You know, it may just be me, maybe they don't feel that way about it. "You said that this writing just wasn't all that exciting." That may be, yeah. Maybe it's just first grade. "Maybe sentence writing just isn't all that exciting." Maybe it's just first grade. "Older kids, having to write a sentence doesn't do that much . . ." No, it doesn't and it's not that interesting for the first graders. But, they have to learn how to do it, I guess. That a lot of things we teach--we think they need it. So I think I'll ask them and see what they think about. "Anything else that you've thought about or would like to add?" I'm really interested in seeing the results.

Topic S-3 Teacher G School Y

(Incomplete Interview)

1. Teacher G is going to talk about each of the activities and answer each question as she goes through each activity.

Okay, I'm on A, S-3A. I really liked the whole-part chart and I even think that put us, introduced us, at an earlier topic, because it really helped the kids see that and I think when we first were going to do S-1 or S-2 I think it . . . earlier. Because some of the kids wondered why didn't you show us that before. Also, the terms 'addition' and 'subtraction' could have been introduced earlier. "Is that the first?" This is the first that the word 'subtraction' has been in there. We talked about the terms. Before we even talked about adding on and joining and they may know those words and I think it is the first time . . . . I also think the term 'minus' should be introduced here. I don't think it has ever actually really, a minus sign. I pretty much followed the directions on this whole-part here. I didn't quite understand why they weren't supposed to complete the chart, because they wanted to do that. They didn't feel it was right to go on unless they had completed the chart, and I wasn't quite clear why they weren't supposed to do that. Maybe they couldn't . . . . I thought the whole-part chart was great . . . .

Topic S-3 Teacher H School Y May 1979

"Teacher H is going to go through the activities and talk about each one individually." I guess as I stated the other night at the meeting, I feel that these boxes explaining, this explains the story so much better and I really feel that it should have been introduced earlier. I feel it was really an important little thing that taught the kids how to get their ideas down some place and then some of them were able to write their sentences so much easier. So I really wish this would have been introduced much earlier and I know that you explained it as the part-part-whole and just a simple joining and separating, but I really think that with the children it wouldn't make much difference. It would really be a very helpful thing at the very beginning. Just to look at the sentence and say, 'hey what are we going to do here?' After you've got all the parts in the box it really helped afterwards. I have two or three that still do it, but for the majority of the kids, I think it really helped a lot. Basically all the pages in here I had to read everything. I think there was too much writing on a lot of them. They probably could have left out all the words (for my class) and I could have just read the stories and they could have left it very simple with the box and a spot for writing the sentence. Too much for my kids. I really prefer a line when they have to write a sentence. Some of the places there wasn't enough space and children find it very hard to write in a straight line and some are just getting to be able to write their numbers a little bit neater so you can read them; compared to the beginning of the year, and I think likes would have helped a lot. There were some pages where I had Leone separate with a pencil all the problems because there was just so much going on. The last book I did that about three or four times or had her make lines beforehand, because there was just too much on one page, but then you couldn't very well leave out all the words for my children and put them in another thing. But I think some of the pages it was just too much. Another thing I did with the story problems, I kind of changed it around a little bit, I felt that some of the children were just getting the idea of how many cards that were all together or if you have 11 altogether and 2 said 'I miss you,' how many said 'hello' or whatever, then all the rest of the stories they had the wording all different and I tended to stay at one like even if it didn't say altogether I would add, how many were there altogether. So I kind of stuck with one story format and I think there were too many changes. I can't speak for the top kids. The top kids probably it didn't make any difference how they were written. So many of the story problems as they got further on were just. "So you feel like having just a little more structure, a little more of the same kind of problem could have helped." Yes. A lot of the children, as they got used to the stories they would just look at the numbers real quick and write them in. They thought they knew what the story was by looking at the numbers. They didn't wait for all the words to be read. "So they don't get them in the right spot then?" Right, sometimes by chance. Basically, there was too much writing for my children. They couldn't read the stories anyway, but I think the story problems are important. I don't think they should be left out. "You just want it simplified for them, maybe?" I guess there is one thing that I like about this program in that I don't feel that they have to do every page so if I felt they were getting bogged down with them, like there was one page that I thought was really hard. They had no problem going across and then going down. I have some that just write it messy and they're not really straight in a row, but there was no problem in going to the side. "Horizontal to vertical?"

They enjoyed that page a real lot, with the correcting page 12. I gave them a marker and then they, I said that I had done the answers and they have to be the teacher now and they did it so neatly--they enjoyed that one. I did not do the one with the dice. They need very simple activities and it was just too much. I did not do the one with the rock. I just didn't feel that it was necessary to get the idea across to the kids. It would have been fun and something extra but I felt that the basic things. We did this one, not too bad but I still feel sometimes that they just wait for me to put the answer on the board. I'm not sure whether they really understand what we're doing. Some of them . . . "That's page 16." . . . went right ahead and wrote the sentences. I didn't do the money because I haven't really worked on money all year. If there were any pages throughout the program I just skipped it. They have a hard enough time saying 10 take away 5 is 5 much less thinking about what a dime is or a nickel. It's just--money is one thing I feel when the kids are ready for it they'll learn. I thought if I had time at the end of the, I would do something with it. I did this one, page 10, and . . . with the path. We did the whole page and I had it on the board. We took the path out and we laid it side by side and what I did was. . . "Teacher G said she had problems with it because the path were so mixed up." . . . I had them color code it. The first one we used a red crayon and made the path and then we did a blue crayon and so on. We took a different color for each path and I did it on the board as we went along and I really kept it going at a fast pace, so the kids really didn't have time to . . . what are we doing? Okay go from A to B. So I really guided them, but we did do it and they, it's a little bit confusing. I think if you went ahead maybe there was so much on one page, I think maybe four people would have been plenty. It just got such a hodge podge of paths and Teacher G even had mentioned that it was a little difficult for some of hers. I put the whole thing--I had this all on the board, we did half one day and half the other day. Let's first go to A. I had them take their finger and go A to B. How many butterflies? They always wanted to say one because they saw one picture. So after we got the idea that it was five butterflies and five rabbits then it was alright. Then they caught on. The last few they did all right, you know, the majority of the kids, so that wasn't too bad. I don't really think that they can ever get enough of difference and some addition/subtraction "drill pages." This page 21 they really enjoyed because we talked about families using the same numbers and we, when we checked we went like this and criss-crossed and if they had them right then they should have had the same one up above and they thought that was so neat that they could find out if their own answer was right by going up that way and I really didn't do a whole lot on families. "You found that difficult, I'm assuming, with your kids?" I really did and I don't think they really, they said, oh, there's a 2 and a 6 and 10 and all the ones, but I don't think they really thought about how they went together. "They didn't connect the concept, probably." I did it with cubes and I said, "well, here you have 10 and we're taking away 2 and we have 8 left, and look what we're doing here, we're just taking these 2 and 8 and putting them back together and look, we end up with wat we start." If they had to do that by themselves, I don't think they would have really understood it. They could see it if I did it. We did this and then on this page, you know they could find all the answers fine. I don't really think the number families really meant too much. A couple of them tried to criss-cross over like we had done before and that didn't help too much. The last page we just did a couple of them. If they could give me one other sentence using these numbers then it would be in the same family. I just left it at that.

I'm sure some of the children in other rooms did really well on that page. "No. Family seems to be a difficult notion all the way through for all the kids." I just didn't feel it was really important. I guess what I really spend the most time on was just following, this is a good unit for following directions, really, because they have to know where to put everything and listen to the stories and so I worked a lot on that--I worked a lot on the drill. Not memorization of the facts, but just being able to--I encourage the marks of the fingers or whatever and some of the kids just went through and you could tell by the end of the unit how they had gotten where they didn't even have to do this or think, they just knew what the answers were. "Any thoughts at the end of this that would be helpful for us to know before we begin working with second grade teachers? As far as the logistics of the whole thing this year?" I guess I felt a little presured getting it all in with my children--other kids, the teachers got done with theirs, their children--but I think with the load of children it's an awful lot to get done. I really had very little time to just stop for a couple weeks and, like you had mentioned, now seven units for next year. I'm just wondering how these kids are going to be able to handle that, it is really complex if you're going, it's all going to be with the story problems I take it, and the addition and subtraction. I had trouble getting through three really long ones and I'm just wondering about the seven, if you're going to be able to expect these kids to get through all seven of those. "I'm sure if they can't it's okay. It became apparent there was no way we could keep all the teachers together and I'm sure that will just have to happen next year." I stayed together, but I always had that feeling like I was doing the work. Some days they really surprised me, but the majority of the time I had to put everything on the board and say, "come on, here's my answer put it down," this is what we're doing. They were that type of class. I'm really not sure if they really understood the underlying concepts of it all. Most of them certainly can add and subtract up to 10. I only had about one on my test that I gave yesterday with the story problems and the little part-part-whole, I'd say there were only about five who didn't get it. So I was really surprised at that. Of course I gave them very simple ones. I gave them one addition and one subtraction. It wasn't like they were all mixed up or anything like that, so I was really pleased with that. I don't find any of the activities hard to teach because I just change it or I do something maybe a little bit different--I never let that bog me down. I don't think any of them were too simple for my children in this unit. Even the pages that had just the drill on I only had a couple maybe got them all right the first time. A lot of that is just because they go too fast or they add when they're suppose subtract. Maybe a couple will get perfect papers. There are not too many on each page and they keep below 10, so I don't feel that they're too simple if only that few get a 100 each time. If everybody got 100 each time then you would think.

6. Which activities did your pupils find easy?

I think they had to work hard on all of them. It was not an easy thing for them. "What you would like then, it sounds to me, is something for slower kids?" I don't want to completely throw out the story problems because I think it's important and I know that the last time I went to the math meeting for our district, the children that had started in DMP are up at Winnequah right now. They said that they had found a tremendous difference in story problems and thinking skills, not the basic facts. They've

seen a difference in the thinking process and just sitting down and thinking about how they're going to attack the problem. Mr. H is one for that. We've gotten away from people thinking and I'm glad that we've gone back to that 'cause they really need to think for themselves.

7. Is there material which your pupils should have covered before this topic which they didn't?

No. I felt there was a good even flow from S-1, S-2, S-3. The only thing I have against it is the little box. I can't see the difference in the sentences when I read them to the class. "I think that's added purely from the theoretical base." You can make it a fun thing--I have this secret code and make it a fun type thing and I think that will help a great deal.

8. How did you choose which activities to use?

I guess I did it mainly--time--I picked out maybe the two or three that I felt were the most difficult on those pages that I told you about. The dice, and I just kind of planned my time over the block of days that I had and I really did almost everyone except those two pages--14 and 15.

9. Did you change any of the activities? Why?

Mainly because of my low children. Where I had to do more explanation beforehand and do it together where it says and the last five problems that your children do by themselves--I never did that, maybe one--and then we could have 20 beforehand and they had the one to do by themselves and they would get it all wrong.

10. Did you add any activities? Why?

Yes. I do all the time. For all my units. "Because you feel like your kids need more examples in a particular kind?" Yes, and even when you have the top kids there are other activities that you can do to really reinforce that in a fun way or something that you've used before in another curriculum and I just--I'm not one for sticking to worksheets anyway as far as math is concerned. That's one reason I like DMP, is because they have other things suggested and they have other materials. So many of the schools that you go to visit have a workbook and the kids do page after page and I guess that's one thing I didn't like about S-1, S-2, and S-3 is because you end up doing more worksheet type things and it is hard to get those centers ready and the stations ready and get all that extra material. But I really think it's worth the effort.

11. Is there anything else you want to say?

I hope it doesn't go down the drain. The next couple of years--after all the effort that you people put in and really the teachers here have worked hard on DMP and really hope that in a couple years they're not going to throw it out the window.

Topic S-3 Teacher I School Z May 1979

1. How important do you feel the overall topic is?

Very important.

2. Which activities in the topic do you feel most useful?

Well, it depends. Your objectives were obviously to do the whole-part-part, right? "Yes." Wasn't that the gist of the whole thing? Which ones I felt were most useful? "Yes." That would be very hard to answer. Many of your activities--I could not answer that one. "Did you think the part-part-whole chart was helpful?" The chart of you mean the concept of it? "No, the chart." Yes. "It did help in their solution or could solve without the chart?" "We've had some people say they wished that had been introduced earlier." I had them come around from another angle. I question some of your sequences. First of all, I would introduce, and will in the future, whole-part-part without solving. I think when you combine the two you're asking for too much and you're getting very little of the two things you want. One of the whole-part-part concept and actual solving. I found later on it was very interesting when I gave them very difficult problems and I gave them the whole, the part, and the part and told them if you have all three you can write and you can solve and therefore they were not encumbered by having to solve. Our children have a built in, I don't know if it's from our society or if it's just innate, desire to solve and solve quickly and show the world how they can solve. So I think you're defeating your purpose with this to ask them to solve. I went back in my preparation and had them just simply identify whole-part-part. Don't worry about solving. Then it seemed to relieve them of that problem of things to solve and it was really fun to see if we could so it. 'What did we have here?' Was it a whole-part or a part-part and we didn't have to worry about solving it. "What stage of the game did you do that? Had you really gotten into the activities? I introduced using, you know I made my little chart, and we talked about whole-part-part and we used some flannel board, you know, activity type of thing, then we went through this. This is way too much reading for your slow readers, way too much, because they are too involved in the reading. Now, either you want them to be able to read it and understand it or you want them to be able to solve it so they've got to go from reading an idea to putting it into what I would call a math sense. So that I found was, I had to go over--all my kids were not--this was way too much reading. Now there may be very sharp kids that . . . "So did you do each problem with the total group?" We had different kids so this took a lot of time. Then I did it, I could see what concepts or where we were going as far as the whole-part-part went. Now I cannot tell you exactly where I went, I always forget it in my notes, but I went back then and made out a ditto sheet where I had a whole-part-part and we went through, we had different problems on the board and we just identify the whole-part-part and they liked that and I think I did that right. This I did almost as an evaluation near the end where we went over vocabulary. Number families I found you don't have any where near enough repetition, so we do that ourselves. "So you add how many, would you say three or four?" At least twice. It was very very interesting the third time I did it. I had them select their own number family and that was very meaningful because it was something that came from them so they could, I wish I had saved the papers because that was where I took. . . Oh, then we used the chimneys for the whole-part-part and some of our papers and here we used the attic and they liked that. "The chart?" Yes

and one time they had a great deal of fun when 50 was a whole and 20 was a part and 30 was a part and you had 200 as a whole, a 100 as a part or whatever, 50 and 150. "Did you find most of them could do that?" Well, it wasn't, I wasn't interested in the solving, did they know what to do and they were just amazed that 200 was a whole and 50 part and 150 was a part. They could write 50 plus 150 equals 200. 200 minus 50 equals 150. To them for the first (gasp) look what we're doing, but to me it told me did they know the part-part-whole rather than they were no longer concerned. So they knew if they had the whole and they took away one part they'd find the other part. So that I liked and we did that. "So you added additional work twice then on whole-part-part?" Yes and we did this once where I gave them the number families once again where they could write whatever number family they wanted and then could write their 4 sentences so in another, go back and, this would precede any solving the whole-part-part. "Plugging in values into the whole-part-part chart without solutions?" Now, they were able this yesterday, I haven't checked it, their sheets they dearly love. Now, I gave them colored pencils and they think that's a real big deal. "Their drill sheets with . . ." Well, they did . . . identify part-part-whole. "So there are vertical sentences where they identify part-part-whole?" It's at the last and they say don't worry about it if it isn't mastered. 'Cause it will be done later on. As I say, I haven't checked but the way they handled it . . . They had no . . . if the children do not understand it will be explored again in later topics. To me this is an idea of what in this tells me what they know about whole-part-part. I would say of my 19, I have four that are a possible weak in all math concepts. Time, money, whole-part-part, listening, which isn't a particular in math but listening skills and following directions, staying on-task. "You use this family chart also as an evaluation, right? So, did you think the topic inventory gave you a notion about where they were?" I know where my kdis are. "Would you say the topic inventory is too easy?" I didn't even look at it. I don't know those inventories. I just turn them in. I have no idea how many errors my kids have. I would guess if there were a lot of errors it was due to carelessness or time of day or something. It isn't a matter of my kids, I can pretty well tell you what facts. I give them physical things to count and they're getting more and more--they're still using a lot of fingers, kids instinctively use fingers. You could pile the desk 2 feet high with other things and they would still use fingers. This state we did. It was alittle difficult--we did as a group--but I didn't give answers, this is something I would owrk on. I would develop all I wanted them to tell me . . . this is how I told them. . . I said when you have a number story you'll know three things. You'll know a whole and a part and a part if you solve, but most number stories we have to solve we only know two things. Over and over again I had them tell me what two things od you know from reading this or hearing this, read or seeing it on the board. "So this example, 13 balls, 2 are red balls, how many are green balls, we know and there are two blanks in, the children were to plug in the two things that they knew." And I had the vocabulary always on the same page so they wouldn't have to struggle with the spelling or knowing what to do. That I would do more and more of. "Could they read that page?" Yes. That's a pretty controllable vocabulary. They didn't have too many problems with that. We did--took some of science words, plants and guppies. Most of those things they know and, but our vocabulary we wanted them to get was whole-part, add/subtract, addition/subtraction. I was surprised when we know, when we add, we are doing blank, when we subtract we are doing blank.

They would say, when we add we are adding, we are doing addition. It was really kind of chintsy on my part. I didn't particularly care. I just wanted to see if they could handle it. "So this was a vocabulary kind of evaluation." Well, I wanted to know, we had talked about these concepts. See math stories have a blank, a blank, and a blank. Can they rattle that off. Do they know it's a whole or a part-part? When we know a part and a part we what? So they know the procedure, they make that decision. But I think all of these concepts should come before the solving, and I think you get into the solving before you develop the concepts.

7. Is there material which your pupils should have covered before this topic which they didn't?

"You would say this experience with deciding what is whole, what is part, what is part, and then do the solution." Identification of the information you get either from reading or from this, what information do you have here and then if they know it the information that they are getting, then they can decide what information do I have to find. Together there should be the three things. There are many times I would ask them to tell me what don't you know. That was, at least the things I would do. I would do it in just a little different sequence, and more in depth. "Do you have any more copies of those papers that we could have?" I don't have any copies, maybe we have to run them. Then I made a dice game ditto, a length thing, and I used it also with the, I found this was very necessary. 'Cause you set it up for the youngsters. It's one of the games and I found it was much easier if I gave them blank and they could put in their little number facts. I did skip that graph. This I did, Activity D. I don't pay much attention to the activities. I just kind of go down them. "If you were giving suggestions for this study on things that could be more useful with the second grade teachers next year, what would you suggest?" All I know was the input I got from the second year teacher that kids could not go on who didn't know the part-part-whole, and they said give them a good foundation in that so we have something to build on. I feel now, I'm going to follow very very closely, I wanted to see, I think my kids have more than a foundation. I think they are close to mastery as far as really understanding, thinking it. See, I think it's very important with your math book because you use different terminology, different approaches, kids don't pick up before they come into school. We have to get the kids thinking your math. We can't get into just pencil and paper type of thing. If we don't get our kids thinking in math and the teachers thinking this way--do you know what I mean? "I do." I take an algebra and I was not thinking algebra, I got through but I was not in tune. I want the kids saturated so they know. With your firsties you don't, you always go from more introduction exposure too, but I try to get as close to mastery as I can and still make it very pleasant. The groups supposedly was a slower group, I don't know how they're coming out in comparison with Teacher M. I feel they are a strong lower half. "That would be interesting to look at and we can do that. What about the logistics of the way we ran this, were there things that we did that you would wish we didn't do to the second grade teachers or ways that we could have been more helpful to you?" I don't know. The observer didn't bother me at all. She's a very pleasant gal and I had agreed at the beginning I'm going to completely ignore you, 'cause if I ignore you the kids will ignore you. So she, just like part of the furniture. We did exchange a few comments here and there, but other than that, that didn't bother. Once the kids

asked what is she doing here and was half way through and I said we are so late--let's talk about it tommorrow and they forgot it. The interviews, the first one we weren't notified of and so it came as a surprise, but that didn't particularly bother me, I'm used to surprises. I don't feel that you have shared whatever information you're gathering with us. I don't feel left out, but I'm not sure if you have information that would be valuable to me or if it is only valuable to you in the statistical sense.

Topic S-3 Teacher L School Y

(Battery in tape died.)

1. Liked S-3 best.
   Part-part-whole--introduce earlier.

2. Didn't use one on rocks--used the rest.
   Liked: graphing, games--threw dice, good that they write sentences.
   Had used money exercise previously.
   Liked geoboards--different.

5. Difficult to teach: Better done than others, easier to teach.
   Page 6 on kids book.
   Unknown in "pot"--needed a concrete referent.

6. Kids found easiest--combinations

7. Difficult--families

8. Part/Part/Whole--wished they had had that sooner.
   Maybe--word problems scattered although why not some part-part-whole or word problems on topic inventory.

9. Didn't change activities or add activities.

Times that we had more "things" in kit ready to use.
Takes a lot of time early in year.
Lots left on teacher.
Will be nice to be left alone.

Topic S-3 Teacher M School Z May 1979

1. How important do you feel the overall topic is?

It's vital. It's a different way of presenting adding and subtracting than I had been taught to teach, but it's absolutely vital. I like the idea of whole-part-part with the chart, the illustration that they can use, but I'm not so sure that that's how they learn. Because putting the whole in the part in the chart and trying to find the other part, I found that it was confusing to them if they still wanted to find . . . The answer would be the whole so both numbers would come in the part boxes or they would put whole-part and then add up to the whole, so it was confusing for them to put the numbers in the chart--they seem to know the process, but it was hard to use the chart so then I thought, is the chart necessary? I think it's a good idea, but if they're getting the answer . . . "Would you have introduced it sooner, do you think that would have simplified?" Probably with my group. I felt I had a group that would move fairly fast and caught on quickly to what I was doing. "Teacher M is going to go through each activity and talk about its use or problems that she had and so on." First of all the booklets were lovely, but the hard covers were very hard to fold back to do work in. I took the bookets apart and kept the pink paper for other use and there was one, when I got to it, there was one part of the topic that needed the pages side-by-side. That was real difficult if you didn't have the book taken apart ahead of time. Starting out with the first part--maybe it's because it should have been presented sooner to my children--an example of whole-part-part when they would have a whoel and a part and were trying to find the other part, they would almost eliminate the chart--think 7, 8, 9, 10, 11, 12--usually count on their fingers, not the cubes, and then give the answer of 5 but not look at the chart. And I wasn't always sure that they were realizing whole take away part equals part or part plus part equals whole. We went over that, each step on the chart, and then over on the side P add on P equals W and we said P stood for part and . . . But I don't know if they really used that. I thought it was nice, but I'm not so sure that it was helping them in their process. "So, what you're saying is that you think your kids already had learned how to solve those and so maybe this was late for them?" Yes. And for some of them that had learned earlier I think it almost confused them when I made them sit down, look at the chart, fill it in, and then go back to the problem, and they would talk about which was the shole, which was the part, it was almost as if . . . it was too tedious and they wanted to forget it all and they got confused. "Because they could solve it?" Yes, right. That was another problem even with S-2. They were always in a hurry to find the answer and we did expect the answer from them though we played, we still expected it from them so they wanted it, which I think is natural--being what we are, everyone, you want the answer, you want the final product and they did too, and a lot of them knew their basic facts before we started it. When I went through the problems like on page 9 and 10 in the manual they could use the charts--they talk about part add on part equal whole, but it was almost as if I was dragging that out of them, that they already had their hands up and knew the answer and did not even want to go through the set. I don't know if all the children in my class knew exactly what was going on as they see it--maybe it helped more children than I thought. It just seemed like I was doing all these steps-steps-steps and they already knew the process which I was going through--part add on part. When they did work like on pages 4, 5, and 6 of their student book, the validating caused a real problem 'cause they knew it--I'd keep saying, but you

still validate or you check your work. I used the words. "Interchanged them?" Right. They didn't even want to do the papers; they would say, 'oh, not one of those again.' Because we have to validate and for many of them, not all of them, they knew that 10 take away 3 equals 7, they just didn't want to spend the time. Even though they're not pressured to do it in a certain amount of time, they still feel that, their inner pressure of 'I want to get finished' and for some of the children who work slower even though they knew their basic facts it doubled their time for working and they . . . "Did you find they made errors, careless errors, or was that not the case?" Oh definitely careless errors. I think it's a good idea to get them into validating or checking their work. I think some of that also came from S-2 when we expected answers from them that they knew many of these basic facts or thought they did because they had worked not with the part add part equals whole or whole take away part equals par or even these kinds of number stories, but they knew add on and take away so they had been working with that kind of a problem for so long and had been expected to answer them, not mastery, but even if we said, 'don't fill in the boxes' they wanted to and sometimes it said have them fill in the something box. "Did you eliminate any activities?" Only one that was optional, otherwise I did everything according to the book only, it was the first time teaching and I felt that was the best way to go. This is the one I eliminated. "The graphing?" Yes. S-3D--it was the optional one with the graphing. We did chart work in that two week interval that we had between S-2 and S-3. "You did some graphing, then?" Right, and I thought that that was plenty to show.

10. Did you add any activities? Why?

Not while teaching S-3, no, except the extra worksheets. But those came from DMP also, didn't they? "Were there any that were particularly difficult?" This was the one--pages 18 and 19 of the student booklet. "Just because it was hard to get--is that the one you had to put side-by-side?" Right. I had taken it apart before they did it, but, plus, I think this chart for that age was just too much on one piece of paper. Had it pictures instead of the persons name for group B or the letters would be different colors, something else besides the black and white. That was too much because I went over it with some of them who had made a lot of errors and to go back then after you've check, marked, and erased over--that was too much to expect of the first year student. It's dull looking for a first year student. The idea of it is very good, but it need to be presented to them as far as on paper in a different way. "No doubt commercially you could make that idea go." Yes. Then we got . . . . . "Did you like the amount of real that there was phoning, did you think that was about the right amount?" I do. Activity F in the student booklet, page 23, where they were to do number families it said to also introduce the concept of the three numbers in the box, but there is no place on their papers to do that. I tried having them put it on the side--very difficult. The concept is good, but it is not presented in a good way. I didn't think, because the idea of part-part-whole in the chart should be one less and totally on its own, I think, with more maybe boardwork, maybe manipulative objects rather than paper work right away where there's no space for the chart. We did a lot of board work on that one. Most of the children completely forgot about the chart--did not even do it on the side. It was too much on one paper--a better way I thought would be half

the amount of problems with a lot more space on the paper and then an area for the chart. It's just too much to hit a child with. The idea is good. Then when we went to page 24, when they had to go one step farther than what was on page 23 and actually write other problems for the family--again there was no place for a chart and because there wasn't and it wasn't stressed as much on page 23 some of the child, who I don't think would have had difficulty, had it then on page 23, had a lot of difficulty on page 24. "That was your last day, wasn't it?" Yes. "That was the day I coded in your room and a little girl sitting up by me was dealing with it, well if she wanted to do the part-part chart she could and if she didn't want to she didn't have to and was trying to convince others that she really was right." That was when they got confused with part-part-whole . . . 7 plus 2 equals 9 and they keep building and get numbers up to 25 because they don't have the chart. Where if they had the chart they can check it right away. I like that idea of, if you had a page like 24 and they could have the chart, they could validate the chart. All the different ways and then write their problems because I think they get very confused doing like 1 add on 3 equals 4, going over and validating, then they've got to come back and remember what am I doing on this paper. The first year student, they've got to have this step and this step and this step otherwise there is too much in their minds. It's just like myself. I need number 1, number 2, and number 3--you have to go back to number 1 and then go to 2 and then try to go back to number 1 and then 3 is very confusing. Those were the only recommendations I have for it.

11. Is there anything else you want to say?

I just started 28. Nice topic, but for my children to just--this time--some of the activities that start out are way too easy. Way, way too easy of putting together. Symmetry we're having a good time with and fractions we're going that with--that I'm supplementing with my own work sheets and my own lesson plans only because the part like I think a fraction should be more concentrated on that, the putting together, at the beginning. There's what five or six different pages of cutting up and putting together, well they weren't even hardly listening to my directions because they could see right away what it was going to be and that kind of lost the whole point of it. "Maybe you can skip a fiar amount of that then because it's kind of silly to do the stuff they already know." But that's only with this group that I'm talking about. "Any other suggestions about what we've done or what might be easier for the second grade teachers?" No. Except for that of papers--you know? Not in the general plan. I still question about, do they use the chart part add on part equals whole, but I think in their second year--the second year teacher--could better say whether or not they're using it, 'cause I'm working with too simple of facts. "They may not need it." I don't know that answer. But they do use their fingers. I know more which they won't be able to do if they get into higher numbers.

Topic S-4 Teacher C School Y October 1979

PLANNING

1. Do you plan alone or with other people?

I generally plan alone unless we plan something in our team meeting. "Does that often happen? That you will talk about one particular content area?" Not particularly. Mostly we're talking about overall math problems or D. will tell us what she has on her mind for that week or what the new things are coming up, or whatever.

2. Do you plan day-by-day or do you go activity-by-activity or topic-by-topic, or do you have another way that you plan?

By the week, so that I plan for the following five days on the weekend. Then I modify that as time goes--generally the children are not able to follow my plans--they may cover half to two-thirds of my plans or not even that some weeks.

3. Do you use other resources than the topic material?

Sometimes, yes, I use worksheets to clarify the topic material or to sort out the ideas in which the children are mixed up on. "Are those things that you just would work up--would you make them fairly close to a particular activity or might they be something completely different from one of the activities?" For explaining further in an activity I like to keep them in line with the activity. Maybe I'll sort out all the parts of that activity that are plus sentences and say to the children, now these are plus sentences, and then another day give them minus sentences and subtraction sentences so that they can actually see the two different kinds. Though we tell them there are only the two different kinds many of them are still confused on that unless they can actually experience for themselves the whole page of plus and minimal page of minus. So in that sense it stays quite close. The only time when it does differ is when there are children and I have maybe three of them now who are almost always finished with their work ahead of anybody else and then they get extra sheets that may not exactly follow what they have done. They're kind of challenging sheets or something different.

4. Are there kids that you plan for specifically?

Yes. Those that are finished first generally and those that are very slow I have to continually remind them, watch them, help them with, oh, for example, one of the children is almost always printing her nines backwards so that they look like a p or her p's backwards so they look like a 9. I should say because when she labels the parts and the whole the ps are always 9s and she has to go back and change them if I haven't been standing next to her all the time to keep reminding from problem-to-problem. Then I sometimes keep them in from recess or part of recess to catch up, to help them with concepts.

DIRECT INSTRUCTION

1. How did you decide here at Y how to group your students?

Generally the children are grouped from the first grade teachers. Now, last year the children were in three math groups because there were three first grade teachers. There were four second grade teachers so they put them into four math groups for us this year. "So the first grade teachers are the ones really who group the kids and then--have you for the most part kept with those groups?" Yes, we have. There's quite a range in my room now I'm finding. "But they did try to group academically, right, so that the high kids were together and the slow kids were together and . . ." As far as I know. I imagine they had the two average groups now that we have must be from the average group they had last year, plus some from the high and some from the low so that they are a mixture of lows. But I would guess that the very high and the ver lows come out, you know, the very highs and the very lows. I don't know what the average is, my room seems to be quite a range. "Do you try to group within your room?" I sometimes do. What I do is, I ask any children who are having any particular problem to come up to the table so that I have the group of those that are having difficulty and those that don't feel that they are having difficulty. Then I work with that group at the table or that particular unit for that particular type of problem that they are having difficulty with and that seems to keep them from daydreaming and keep them on the job more.

3. How do you decide where an activity should be one that the kids do on their own or one that you direct?

I usually start out by each section of a topic--I start out by explaining or using board work to demonstrate exactly what this new topic or this new section is all about or how it's different from the previous one. If it's an addition page of the nature that they have had before, like page 26, I just tell them to go ahead on it and they are find. "But if it's new material you feel you need to start with them?" For example, the graph work. Well, I don't know just how much graph work they've had last year, but they needes some help in labeling the number of blocks stacked up for each type of each work underneath the column, and then some understanding that each block refers to one kind of a one-to-one correspondence. Also, the change now from vertical to horizontal problems in that each one of these was a horizontal problem and even after that I had a coupld children ask me, are we supposed to write it this way or you know, make it horizontal.

4. How do you decide how much time to spend on an activity?

"For example, there were word problems and there were other kinds of problems. How did you decide how much time to devote to a given activity?" It seems to be that when the children understood the particular activity that they were given, if almost all of them could seem to be able to do them with very little difficulty then we would move onto another topic to another concept in the next little lesson in the book. But, if there were half of them, or if they are even having difficulty, then I would work with them maybe at the front table while the others worked on their own. "Did you let some go ahead and some not? Or did you try to keep them together?" As far as the explanations and all go, I kept them together so they would all hear the teacher's

explanation for each page and then if they had the two pervious pages, which were not completed and they needed extra help or extra work on them, then I had them usually go back and complete some of that work or all of it and then go onto the new page I had just explained. Whereas the children who had the old work finished and had it correct and I knew they understood what they had been doing, then they would work on the new work. "So you did let them go ahead a bit on their own."

5. What kind of evaluations of students do you favor? Would you test for mastery or not?

"Would you explain just how you would evaluate your students?" I don't quite understand the question. "I have rephrased the question for C and asked her if it bothers her for her children to go ahead if they have not mastered a particular concept." Some concepts that are perhaps above the level of the second grader perhaps the abstract concepts, I feel that they're not really quite ready for and therefore I feel just fine if they don't mastery them cause I realize they are not able to do so. In areas where they're asked to add, like add the numbers that have the sums from 1-10, I feel that they ought to really master that and have it pretty well by memory before they're asked to do the sums that make 20. Because, if they can mastery those from 1-10 then they can see certain patterns and certain elementary things in those that will help them master the sums up to 20. So I feel in certain areas it's really good to have mastery before you go on and in other areas it's fine just go on. It depends on how much emphasis and how important a particular activity is.

TOPIC INTERVIEW

1-7. C is going to take a look at each activity and talk about her feelings on that particular activity.

On page 2--that is the first page that they were given for the year. Twelve tricks. And it was the stories about the magicians. I feel that this page was very difficult for the children because they were coming cold out of several months of not having done anything like this before; except, for what I understand, they had some of these in first grade, this type of thing in first grade, so to start off with the story problems was very difficult for them and the idea of the chart was not new but was difficult for them and I would recommend that they have more visual and pictorial type work to start them out at the beginning. For example, the worms on the following pages that they measured with cubes--that helped them quite a bit with understanding the part and whole relationship, but it still didn't help them much with the addition, the difference between the addition and the subtraction problems and they were really confused about whether to add or to subtract and part of the problem was I was having them fill in all three parts of the chart and I realized that if I had them fill in only two parts of the chart that made it easier for them. At least it made it easier for me to go back and check if they were actually using the given numbers or if they were using some other numbers in there, up and down form, if they were confusing the third, the mystery number, in their up and down form. And this continued to be a problem, this confusion between addition and subtraction. We did try making up worksheets that had only addition problems and then worksheets that only had subtraction problems and another worksheet that was mised. And that seemed to help them, it cleared up some of the problems and

the wording for each and the typical wording in a subtraction problem and a typical wording in an addition problem, but they were still having problems. And I realized that the, now the problem was in the fact that the horizontal sentence had, like, something take away 3 equals 4 and now in their up and down sentence after they filled in the chart and labeled up and down sentence, some of them were thinking that they had to use the same kind of minus or plus as they had in their horizontal sentence. And they weren't saying this to me, but I observed this as time went on that this is what was happening; that they felt that they had to do it the same. And so then I put the two samples on the board. The only kind of chart with the whole and the part labeled in it, that's the only kind, that is the only thing they can do with something like that when there's a whole and a part to subtract even though the sentence given is an addition sentence. "That makes sense--it would be a missing addend kind of sentence where they'd want the unknown to be one of the addends." And in the other instance, if they had two parts and they had labeled the chart with two parts many of them were still subtracting because in the original horizontal sentence it was a subtraction sentence so I explained to them that anytime they had a chart that looked a certain way, for example, with a whole and a part, they would always subtract and anytime they had a chart which looked in the only other way possible--which is two parts--they would always add regardless of what it said in the horizontal sentence and then after a couple of days of reexplaining this they really picked up on that and that really has been the thing has then helped them beyond this--helped them surpass this plus and minus problem in what to do. "So you had them T in with the way the numbers looked in the chart?" Yes and then I put them on the board as a permanent kind of thing and I labeled the part-whole as a subtraction and the two parts as an addition so that if anyone still faltered and was unsure about what I had said, all they had to realize is that they'd look up there and they'd look at their chart and not at the horizontal sentence and find out what to do; then find their mystery number and put it in the horizontal sentence. And it's very important for them to realize the steps one at a time. I also found them using their cubes and figuring out the mystery number and then doing the chart and then doing the up and down sentence so I realized that I really have to stress the sequence of their activity and now they do understand that and almost all of them are continuing to do the sequence in order because when I come by and see if a couple of them are not, I'll remind them so a constant reminder and constant introductions at the beginning of the class lesson--it's easy for them now to do these type charts. By the way, I would like to say the charts themsevles, the idea of the chart, has been well thought out and it certainly helps the child much earlier do the kind of problem where something at the beginning before the equal sign is unknown. They're so familiar with doing an unknown at the end but not at the beginning, that still is very hard for them. However, much easier now that these charts have been an added feature. But the only thing is we have to be so careful at the beginning, I think, to train the teachers nad how to teach the children to use these charts and then do it step-by-step so that right from the first day they understand just what it is they do want them to do. Then I should go back and check on the pages you wanted me to look at to see which I felt were most useful. The story and chart forms of pages 2 and 3 are good much later on. I think they're fine; they should come later and there should be more pictorial type things, like with the worms in the beginning. Pages at the beginning with fewer charts on them, for example page 5, perhaps maybe only do four worms the first day and have four charts and then there won't be so much. They do get confused, it takes them an awful long time to find all of these worms. To find the H worm when they've got them all cut out and they don't finish this

in one day so that means that I have to collect all the worms in the book and I have to do it personally so it takes a long time to collect and a long time to hand out 'cause I have to hand them out personally so that the children don't get them lost. Actually I had to do it, it took maybe 3 days before some of the children were finished with this activity. I felt it was such a good one because there was a lot of confusion at that point so I had them do most of it though a lot of them didn't finish the whole thing. The same with page 6, it's one of those pages where the children have to label the parts and do the chart and then the up and down form and that's all very good later on. The same with 7 and 8. Now, I would say that for the early first, second grade, especially since there's been months between first grade, that any problems that are given should stick with sums that make 10 and not go beyond that at the beginning because here the children are really, for us it seems difficult but we can surmount that difficulty, but for the children it's sometimes unfathomable to have to label the parts, do a chart, do an up and down form, and then be given numbers that they aren't familiar with working at and cannot do the addition and subtraction easily. That they need so many cubes for that they are constantly playing with them and that's another way we're wasting time in math right now, is that they are having to be given 20 cubes and they're only able to do plus and minus to 10 or maybe some of them can do a little more than that but they're having to count so much. "The goal of this, of course, is to get them where they can handle numbers up to 20. At what point do you think they are ready to handle numbers that large? Wouldn't you have this process of having to use the cubes no matter when you began large numbers?" I think the process of using the cubes is just great, but everytime a child is given, well, for example, at the beginning I don't know it depends on each individual classroom. This lower group would take a lot longer and perhaps it should be a long time before they get into sums over 12 or 13 because they are wasting so much time each time on counting out what this magic number is rather than say, now, if this were a 5 take away 2, many of them already know that and they could do that magic number easily. "But they've already done that in first grade, so I just wondered at what point you felt it was . . ." I think it's a good review for second, and I found that even though my average children had done it in first grade many of them, almost two-thirds of them, are counting on their fingers for sums to 10 still and I feel the reason is that they haven't been given enough time at the beginning of second grade to reconsolidate their memory and their knowledge of sums to 10, but the sums to 10 have been mixed in with all sorts of sums to 20 and then the whole things gets confused and mixed up for them and so, as a result, they're still figuring on their fingers for sums to 10, you see. But that should be solved in the first several weeks of the second grade for the average groups and especially for the top group, and maybe the top group remembers it rather quickly so what I would suggest is that there would be supplementary pages especially for the bottom group so that the bottom could continue doing these concepts, like, you know, parts and whole and chart and up and down from but using the numbers to 10 so that they aren't confused with all this adding and counting and then taking away with cubes; that of numbers, that of sums and subtraction facts, that they're not all familiar with doing and then once they are familiar, the teacher will feel this out, then they should be given pages, you know. Then add, you know, 11 to sums 11 and 12 and 13 and 14 and the same with the higher groups. This could be done very quickly, you know, or as quickly as the teacher sees the children catching on, not only to the concept but easily doing the up and down form but always, of course, having the cubes if the children want them. Now the problem with my children is some of them don't want to use the cubes and that's okay, but I find that those

children are making mistakes--they're guessing and I would prefer to have them guess a number sums to 10 at first and see where their mistake is rather than guessing on larger sums that they really can't do. And that is where I feel a lot of our difficult comes in is throwing addition and subtraction too quickly together and throwing sums to 10 and then sums to 20 too quickly together, but step-by-step they would learn. I think we could do this much quicker. "So the children then found the word problems more difficult than drill portion, that's in the back part of the book I'm assuming?" You mean the vertical subtraction and addition? "Well, problems like on pages 22 and 21." Yes. Well, I have a couple who are having severe difficulty with page 22 still. They're counting on their fingers and they're counting and that's fine, using fingers, using cubes, but they're having a terrible time with 5 plus 2, 7 plus 3, 8 plus 1, and I feel this should--if it's important at all, it should really definitely be solved more, have more time for those sorts of things earlier than second grade so that almost all of the children or all of the children at least get the facts to 10 down, 'cause that is such a very important thing in our future life and adding too much tends to confuse them.

8. Did you use most all of the topics or most all of the activities?

Yes, we used everything. Page 18 I saw would be confusing for them, they would either have to use a separate page and line it up to make their own charts and some of them need so much room and it would be very difficult even to read their answers on charts they made in the small amount of space available so we skipped page 18. Generally we at least tried each page. I always explain how to do each page and have them try each page and see at least if they knew how and see how, or understood the concept, or at least had a chance at it.

10. You did add some activities? You did use some dittoed sheets, right?

Yes. I would like to see supplemental dittoed sheets that would make it easier, like, with the low bottom teacher to teach these concepts. Like I said, these things would not all have to be included in the same math booklet. There could be supplemental worksheets that could be labeled for each activity so that the bottom group may, you don't want to get sums to 15 or sums to 20 depending how much drill they got, but how much drill they get takes away from the time they're going to be able to spend on these particular concepts so . . .

11. Is there anything else you would like to say just in general?

Generally most of the children now are really coming along fine. There were a few things as I was teaching that I thought, I think more of these, a lot more of these practice pages. "Like page 22 or 21?" A lot more for the teacher to choose from for her particular level. Like have maybe five pages that would go up sums to 6 for the lowest teacher for children in particular and maybe the average children who are having great difficulty they could take that page home and work on it. Then a lot of pages for sums to 10. Mix them all with sums to 6 then more pages with sums to 12 so that each would be labeled so the teacher would know exactly what is being added and that would be a very controlled way of teaching and then you could say, now we're adding these and you'll have to know 6 plus 6 and you know the sums that make 12, and you'd have those already and the

children maybe could play around the world with those just two the sums that would make 12 and sums that make 11, plus the ones they had and then they'd say, oh yes, not I'm beginning to remember this and I don't always have to be depending on the cubes 'cause someday Iwon't be having these cubes, or always have my fingers but there's only 10 and so I have to learn these sums over 12 as well as I know the sums by memory below 12. I find these pages 23 and 24 going from the vertical to the horizontal confused them a little bit and that was a little bit of a sharp change. There should be comething in between, a couple of pages in between there, if you're going to that other form just maybe explanatory or some worksheet that they could do without having to do a graph plus the horizontal form 'cause those factors are to them overwhelming. To us graphs are easy and we don't see them as the second graders use them and I like the addition on page 26, that's really good now. There they begin to see a pattern following. I was most pleased with page 26 and we haven't done page 27. I'm going to explain that today. And page 28 looks like it will be pretty good--now that's the horizontal form. So, beyond those factors, I feel that we could improve the present good ideas that you have already added to the math program and eventually come out with something that is really really great.

Topic S-4 Teacher J School Y October 30, 1979

PLANNING

1. Do you plan alone or with others?

Usually alone. If there is a particular problem, we discuss it together. That's usually the only time. Otherwise it's alone.

2. What is the scheme that you use for planning? Do you plan day-by-day, week-by-week?

Day-by-day because it depends on the speed that they go. I tried at the beginning for a whole week, but I find that depends on the day--how far you progress.

3. Do you use other resources than the materials that you have from this topic?

Yes. Well not in planning, you prepare things. Supplementary sheets and this sort of thing. At the end of the topic we almost complete regular computation. I made other story problems that they hadn't used for awhile.

4. Are there pupils in the class for whom you plan specifically?

No.

DIRECT INSTRUCTION

1. Do you group students in your class?

No. The whole class is grouped already.

3. On what basis do you decide whether an activity should be seatwork or teacher directed?

What I usually do is begin as a group directed activity at the beginning of each day, even if they've been on the same type of activity for a coupld of days, I will still go over a couple of examples in class. They go on from there and then I go from--it becomes individualized--I'll go from child to child and some who are a little faster will be able to go on to the following pages. In other words, I don't hold them down all for the same problem at the same time. They are all working pretty much at their own speed. Or these are the next to the lowest group--if there are story problems, I read all the story problems first to them so that they are not held down by the vocabulary and then I'll go back and read each individual problem one-by-one so that the ones that can read them go on and the ones that can't then I'll go one-by-one while they're doing (inaudible).

4. How do you decide how much time to devote to the topic?

It depends on how it goes. I don't judge it, I think it's very difficult to judgehow much time it's going to take. I think it depends on the speed the kids are able to go. It seems to be working out with this past topic--some days we cover about two pages a day, other days one--just depends on how things are going.

5. What type of evaluation of students do you favor (mastery or nonmastery, subjective evaluation)?

Subjective quite a bit. But on the other hand, I think in math it has to be a certain amount of mastery. I don't think you can expect perfection, but I think there has to be mastery in this area. "Do you do anything in your class along those lines? Little tests, right, and also speed tests. I think you've got to develop this (inaudible). Once in awhile we'll give just computation speed tests. At least to develop that idea they have to memorize these back sometime.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

Extremely important. This topic is probably very basic and I think one of the more important topics.

2. Which activities in the topic do you feel were most useful?

The chart is extremely valuable, the only problem I ha[illegible] with that was the use where they can learn what the whole and the parts are and the various ways of doing it. The only big problem I had with it was when they made the chart they would work out the problem in the chart before they would write the vertical problem and invariably they would write the wrong problem then. Because they would put the answer in the top part, I found that was a little difficult although it is a great idea so they can see the parts and the wholes. The other area I thought was good is this part--here--could be more activities like this where they're manipulating and deciding . . . "Page 4 of the student workbook" . . . put it down and then you make up your own problems depending on how long or how far. That was an extremely good problem. I guess the rest are pretty much . . .

3. What activities did you figure weren't clear?

No, that's the only one. I think this is clear enough. I don't know how you stop the kids from doing that. I tried to convince them, don't put the answer until you get everything and then put the answer, but that's, I don't think that's a matter of being unclear, it's just a matter or (inaudible).

4. Were there any activities you consider extra?

No.

5. Were there any activities you thought were very simple?

No.

6. Which activities did your pupils find easy?

Towards the back, with the straight computation--pages 26, 27 and 28. "Did they find some very difficult?" The story problems were always difficult. And the problems in the story problems are, again, finding the whole and the parts which is (inaudible).

7. Is there material which your pupils should have covered before this topic which they didn't?

No.

8. Did you use all the activities?

Yes.

9. Did you change any topic?

I didn't change, I added just the supplementary material--towards the end when you are going so many pages of just computation. I didn't want them to forget the story problems so we threw in some of those once in awhile. Also, some of the kids that had the ability to work ahead, I didn't want them to get too far ahead so they might work a couple of pages ahead and then I'd say, well, let's do one of those sheets.

11. Is there anything else you want to say?

I think it was done very well. A big improvement over what's been done before.

Topic S-4 Teacher K School Z October 1979

PLANNING

1. Do you plan alone or do you plan with other second grade teachers?

I plan alone and we compare at specific points in time; but I usually plan alone.

2. Do you plan day-by-day or activity-by-activity, week-by-week?

I begin planning week-by-week and then as the week goes on change depending on how much we cover.

3. Do you use any resources other than the topic?

"Do you ever run off ditto sheets? Yes I do, especially for those who have completed the work. "You also have games in there. Do you use the games?" I used them once during S-4. "So that isn't your usual plan then?"

4. Do you have any kids in your class that you plan especially for?

No. There are certain ones that I watch for because they have specific needs and they come back at recess to complete. But I don't plan special. "And none who go very fast so that you have to plan?" That is when they use the games--those that complete their work first usually have a worksheet or games.

DIRECT INSTRUCTION

1. Okay, now this part deals with the grouping stuff. How did you decide how to group your children?

Actually, not much of a decision was made because they came from the first two groups that they were in last year. We kept them in the same. Those children that were in the first grade groups last year moved intact. Maybe except for a few. I believe that I receives Ms. K's class which we thought at that time working . . . that's what they say. "Has that been true?" A little bit faster, not that much (inaudible). "How did they decide originally in first grade to group the kids?" Well, actually we took results from their readiness tests when we grouped the children for reading groups, and then we had them do simple tasks in math. Very simple tasks whether or not (inaudible) or 1-20. "You don't have a great difference though, do you?" No, not in my own group. There is a little bit of a discrepancy, but the range is fine for me. I mean, there are slower students and there are faster movers, but I don't mind that range. "I cut you off. You said they were not academically grouped." Or ability grouped in math. I can't remember the study that they were. We just sort of put them together from those little results of the tests and then I can't remember (inaudible). There were a few changes, but that was all.

2. Grouping change. I know that you did move one child. What was the reason?

I felt that she could move at a slower pace and needed more repetition in the same topic and was not getting it. The other children were having to wait each time for this individual student. And if she had review and repetition in this range . . . Miss R. had a child who was moving faster in her group and so . . .

3. How do you decide whether an activity should be directed by you or one that you can just explain to them and have them go at their own pace?

When I look at the manual, how they suggest, I think of different groups that I have then I decide from there. "So you do follow the suggestions in the manual fairly closely?" Fairly closely.

4. How would you decide how much time to devote to this topic?

We knew it was an important topic. We knew they had a beginning in it last year, and I figured a month or a little more than a month, really, should be spent on it. A lot depends on how fast they, I felt they, grasped concepts and whole-part relationships--when I felt comfortable with that then I thought they felt comfortable--we went to the next activity.

5. In this material we suggest that it's not mastered. That we are in no way assessing mastery. Can you live with that in your classroom? Can you feel that a child can go on whether or not the mastery level has been reached?

I think so. I think we're used to a mastery concept or something, but I know all haven't got it. I'm comfortable with that 'cause I know it will be brought up again. "That's very difficult for many teachers."

TOPIC INTERVIEW

1. How important did you think the overall topic was?

I thought it was important in terms of giving the children the concept of whole and part relationships and how they relate to addition and subtraction or understanding why or what to do in situations. If I have how many, so many items and some came, how many do I have altogether--I thought it gave them a better idea of what to do. How to utilize addition and subtraction.

2.-7. If you will go through, just starting with activity A, and give your idea about things that you thought were unclear or things that you thought unnecessary to teach--what you thought was really good and ways that you might suggest changing the material after you've taught it.

I think activity S or A, one of the good points was the story Magicians, and giving that kind of story held the children's interest and I did often fill in the chart on the board and have them do it as the whole class and this was real important to do it as a whole class first and then let them go back and fill in . . . "Did you leave one part blank?" Yes. "You never filled

in the whole thing?" No. "Some teachers didn't realize to leave the one part blank and then found that a problem." In the beginning the children naturally wanted to fill in all three, but then we talked about it. That was not difficult. What was difficult and new, I believe, was the vertical writing of the story. They were used to the sentence form . . . "Horizontal" . . . that became sometimes confusing. "What about the reading? Was that a problem or did you just read?" There's an awful lot to get here, or I would call on an individual that I knew how to read well to read it out loud. Then I would almost reiterate, repeat it, go over it. "They didn't for the most part work on that alone?" No. I would say we did a lot together in the beginning. Because we pointed out, in a story problem we circled the numbers in each story and we'd label whether or not they were whole or part and that we found to be more helpful in filling in the chart and writing the story, because we are saying to the children, 'what information does the story already tell us,' and then if they circle the numbers and they label them, that helped us. . . doing that to help them see what's there, transfer to a chart, transfer to a story. "So they went step-by-step. Now, later on in the material they asked the kids to do that don't they? Not necessarily circle, but didn't they later ask them to label a part or whole?" I'm not sure this is a big item, for example, when they had to do a sentence the horizontal way (part and then vertical notation), I think that's a lot at once. I would either/or, but not both. "Did you find that the horizontal sentence influenced them on what they wanted the vertical sentence to say?" I don't think so. I realize it was just, I think they had labeled the sentence is what they did. That's the word problem . . . they wanted us to work with this here. Which they could see, but I think transfer from the vertical to the horizontal even though it says the same thing was two different things and we found that difficult. I think it computes some total, not all. We did a few problems together and in some cases they went on their own. We did a few together and then I let them go on their own. When we came to the part where the mystery boxes are in a different place, we just spent more time on that. I think it was important to spend more time on that, for them to see. It was just an initial introduction I presumed to seeing it in a different place. Asking the same questions, what information is given to you, seeing that the position and what you're looking for was in a different place. "That was really what I was thinking of when I asked the question about whether or not you thought going from that kind of sentence, a horizontal with missing addend to a vertical, was difficult where in fact subtraction sentence with a box as one of the addends would be written as an addition sentence." That's right, it would be, and I don't think in this instance we did. I think they were all horizontal. "That's page 30." I did not have them do the sentence of the vertical form; page 18 in the children's material. This was the same page 19. Some of the children labeled theirs. The hardest page is probably 20, when the answer was in and they had to decide whether or not it was correct. They still have a tendency to say 7 minus 1 equals 8; they don't mean that, but they see the form that way. I just thought that was a little bit . . . "When they see an error it's hard to decide whether or not it is in fact an error." Some of the games I chose in activity S-4 some things were good (Sentence Bingo). I did not spend a lot of time on these activities. I did do Sentence Bingo and I did do this and more and I didn't get all hung up. I didn't do the whole thing. We went faster in the games. I thought it was just a review and they liked them. It was a change from what we had been doing, but I didn't spend a lot of time. "Might you go back and use that another day, or not?" No. I wouldn't; I like it, but not that much. We would play a guessing

game. Similar, something easy, this is the easiest one for them in a sense, but I found some of it hard--how many more would you need to have 14? They had to do a lot, thinking process, which is good but it took a longer time and then they did get into . . . so, I (inaudible) . . . page 32, 33 in the teacher's. The bar graph they seemed to like when we did it and the steps going, figuring out how many steps from such and such, page 24 and 25, although they had more mistakes than usual; but they enjoyed it so, as far as an activity, they enjoyed it but we did do the first together in each case. (Inaudible) and page 23 we did that totally together. "The mystery nubmers, I see." Finding out which ones are more than 6 but less than 9 after we solve the problems and then what they were, we did that on the board. "How did you decide to do that together? Were they confused or could you tell?" I thought it was going to be hard. I thought that that was the worrying, when we are more than but less than . . . a lot to . . . process so we did the first one together. First we solve the problem (inaudible), then we read the sentence--we are more than 6 and less than--but I had 6 here and 9 here so that they could get the concept of in between. . . . That seemed to help them. "Did you try to let them to do it at all on their own?" As we got further . . . "And could they?" Yes, I think so. This was interesting. I followed the manual carefully and in following the manual carefully on part 2 S-4G they just had to bring the number up into a different position, the answer up to a different position, and they seemed to find that fun. I'm not sure what else they got from it. "To really understand that notion is difficult." I'm not sure I understood myself. Probably if I would have taken more time (inaudible). That's not necessarily the case; 2 plus 8 is 10, 10 minus 6 is 4, 4 minus 2 is 2, you just (inaudible). That's not one family, it's different. Whereas, here on page 28 was the family definitely related. We did a lot of the family facts and they understood them. Where they did have difficulty was when they came to do it on their own. Even though we talked about it up here, so I just told them they needed 2 plus sentences or 2 minus sentences that's all. The worm trick was fun. We used a big board for that. We used a demonstration (inaudible).

7. Did you think there was some material that your students should have dovered before they got to the topic which they haven't?

No. Only the ones that weren't here before . . .

10. Did you add any activities? Did you do any worksheets or anything?

Just the worksheets that involved addition and subtraction I did. "But those were supplemental things for kids?" Yes, right.

11. Is there anything else you would like to comment on about the topic or about the study as it's going?"

No, not at this point. I utilize in these topics in particular, a lot of group work as opposed to individual work. I find that's important. We use the overhead a lot. It seems to be a way of . . . their interest. Probably more group oriented than independent. I imagine it's hard . . . right now that's how I feel.

Topic S-4 Teacher S School Y October 17, 1979

PLANNING

1. Do you plan alone or with others?

Alone.

2. Do ycu plan day-by-day, activity-by-activity, topic-by-topic, or use some other scheme?

When I first get a topic I look it over to see what's going to be involved and try to plan out a couple of weeks and I realize, and it usually always happens, that takes longer 'cause certain activities take longer than I first planned it would, so everything gets pushed back eventually. But I try to go so I have a good several weeks and sometimes I can plan out the whoel unit. "So you spend a lot of time at the beginning?" Right, so I try to estimate what activities are going to take a couple of days and activities that are going to take a couple of days I want a Monday, Tuesday, not a Friday.

3. Do you use other resources than the topic materials that we've given you?

Some. I make up my own. Most of it is from here. "What kinds of things do you make up on your own?" Well, most of them are just for extra fun games or time tests or . . . Generally I follow this.

4. Are there pupils in your class for whom you plan special?

A few maybe extra activities for the children who are able to finish work quickly, but generally they don't finish that far ahead that you need something.

DIRECT INSTRUCTION

1. How do you decide to group the students?

"Do you do any grouping?" Well, of the second grade they're grouped in each classroom. Each classroom has a different level so the level I have in my room, well we just proceed on together with the really quick close and so I don't group them much. We just work as a group and if some children are having trouble, I'll pick out the ones having trouble on that activity and pull them over and work with them. But otherwise, generally, we are able to stay together. "That kind of answers the second question."

2. Does your grouping change?

If we see there is some drastic difference between different rooms and different levels. If someone is placed in the group that is quite, moving along quite quickly, if they just need to go at a slower pace, we will move them to a different room, but we haven't had to do that too much this year. They are grouped pretty well.

3. On what basis do you decide whether an activity should be seatwork versus teacher directed?

If it's a new activity even if it is going to be simple; if it's something, new directions are different definitely and I work as a group to start them out, then I let them go on on their own. I do several of them with them first. There always will be someone who needs some extra assistance. If it's new, no matter what the directions, I still work with them first of all. If I see that they are story problems and the vocabulary looks a little hard or even questionable, I'll go through it all.

4. How do you decide how much time to devote to an activity or to the entire topic?

I just look over it and try to get an estimate of how much is going to have to be group presentation, how much has got to be done with the whole group as a whole compared to a review working place I've had. The kids can do it at their desks and get done a lot faster.

5. What type of evaluation do you favor (such as mastery, nonmastery, low level evaluations such as very subjective evaluations)?

"Do you go more towards objective evaluations? Do you do a lot of testing in your class?" Not a great deal. I find going over their work, following closely on their workbook, that I can tell a lot better than a one-day test on how they're doing. Test every once in awhile, like a topic inventory, it's interesting. It's good to find. But I find a truer index of how they're doing is by checking their day-by-day work and their independent work. When they are relaxed they don't feel the pressure. Mostly kids do fine on task, but there are some that still could feel a bit of tension or they feel that they really can't ask a question 'cause they really shouldn't on a test 'cause we want to find exactly what they know and they are not as relaxed. I don't think they can give their true or accurate report of what they're doing. So sometimes when I, and it says that they didn't master it, I know they're progressing although the test didn't show it. Or maybe it showed it lower and I think they have mastered it, but something happened that day. So I like to use, maybe, the test as an indicator. "Do you feel that mastery is important?" I think they should have a good understanding of what they're doing. As far as mastery, I think they should be pretty close. I don't think that we should leave them quite far away until . . . they work at it later. I don't think they should have to be 90% or whatever.

TOPIC INTERVIEW

1. Do you feel that it's a very important topic?

Not having taught it another year, I haven't ever worked with the charts before. So, for me, it was probably as important because I had to get used to the charts. Children, I believe had the charts last year and so for them it was a review and probably was important right now because at the beginning of the year they just started off and they have forgotten a lot from last year. And they needed something to really practice at it and they

need to practice story problems which is difficult for some. It's an important review topic. I can tell by the children that they've had it before, but they definitely could go on with skipping it. They need the review.

2. Which activities in the topic do you feel the most useful?

Activity B when they pulled out the balloon out of the hat--they could really see part and part just so clearly. They started out with a little different kind of problems and story problems and that which is, in math was harder for them to visualize in their head, but when they got to . . . "It probably should have been first, I think" . . . easier for them to identify part and part and a whole. Very good. Starting out with story problems was very hard. I like the stories--magicians I thought was great, it was easy for me to carry on. There was one interest just with a small part of one where they had to try to solve a weight. They could use links--washers--they had to try and figure out themselves that they better weigh, there were not enough washers to they had to try and figure out themselves the better, weigh half of it first and then the second half and then add it together. That was kind of interesting. Some of the games, generally the one that struck me the most was that original one, the worms. The others were fine.

3. Are there any activities in there that you consider unclear?

I really did not care for the workbook page 18. The idea in it was good, and I think the activity where they had to solve a problem, make their own chart maybe and at the bottom have to unscramble the word, but all the other times where they gave them a chart and they filled in the numbers and they had to write the sentence next to it. There wasn't a lot of room to write sentences next to it, they could manage, but when they got to page 18 where they had to make their own charts, they gave them a much smaller area to work in. The format seemed too small. The children needed a bigger area. Too crowded. Kids got confused because they couldn't print it the right size. As far as activities, I think one thing that was stressed in some of the teacher's parts that I do not agree with and would not mention it to the kids is, stress that the whole is the largest number. That's not true. When you have an addition problem, the unknown number is going to be the largest. And then a lot of children, if you say that the largest number was a whole, well, they'll have addition problems enough. Story problem--there are 7 apples, here come 4 more--oh, 7 is the largest, that's the whole. They'll put it in the chart in the whole spot and all of a sudden they end up getting a subtraction problem rather than addition problem like they should have and maybe they're trying to say they had a page of all subtraction, well, yes, there the whole would be the largest, but they remember that the next day when they get to a subtraction or addition problem. It was very confusing. Also, when speaking to the children, when they did their chart then they would write their problem in the book they always said, the children do not write the sentences I realize they mean, they do not write horizontally. But to tell the children, okay we are going to do it in the vertical form, they're printing the numbers, maybe their printing going down, I'll just say they'll write the problem. I think it's kind of confusing to tell the children, okay we are not going to write the sentence today we're going to put it in vertical form. A little confusing! You are writing the problem, just writing it in a different way. And to say just going one way is writing it and the other way is not writing it . . . it's a minor point. Otherwise

I think it may be stressed earlier for the teacher to label the parts. I guess I must have missed it in the beginning and I did not have the children start labeling parts as part-part and whole. Once I got to it it was very helpful, but I think it could have been stressed more in the teacher's part and maybe even in some problems. The children have their workbooks. They could have had some examples where it did have a w and two p's on top. Especially in the stripe problems--it really helped the kids once they started labeling it. Getting it in the chart correctly. Otherwise, most of them were pretty clear.

4. Are there any activities you considered, like, extras that probably did not need to be in there?

Well, I had some pages I told the kids were challenge pages. That if they had time they could do them but they did not have to. I still like them in there without, I can take them out like page 27. The do and undo mystery. That was interesting. It was a very interesting page. But I don't consider it a must for the kids. Some of the children who were having difficulty just solving the problems and they needed more practice and if they got one wrong all the rest would be wrong. So, it was really a fun page and a kind of, well, just told the kids it was fun. They did it great--they didn't have time. Again the number families is a very interesting page. I enjoyed doing it with the kids--not all of them finished it--it was something good for them to see. I did as a group and they understood it. It was harder for some of the children to do it on their own. I think it was something good to do with the kids, but again they did it at their desk and finished the whole page, completed the whole page themselves fine. But, if they didn't get all of them, I thought it was okay because they saw the objective with me as a group. There were some games in there I may have skipped just because of time, 'cause it was very time consuming. But they were still interesting. I may pull out some of the game techniques for other ones. I guess page 23 really was not necessary. Maybe it was a nice little diversion, but it was not real necessary. The others were pretty good practice pages.

5. Were there any activities that you found were complex for you to teach?

I think what, maybe the hardest to get through being new with the program. Maybe next year it would not be as hard. Helping the kids to get the correct numbers in the chart from the story problems and some children would read the story problem and then they were very good at it, and they would read the story problem and in their head they would figure out the correct answer and they would put the answer in the chart right away and then, okay, 9 balls, 5 disappear, how many now? They would know the answer's 4. They would put that in the chart right away and then they'd go and do the story problem and they'd take the 4, which is the answer, and they put that in the story problem: 4 + 5 = 9. Now the problem 4 + 5 = 9 is not the problem that goes along with the story problem. The problem should be 9 take away 5. But in their heads they figured out the answer already, which is kind of good, but yet they should be, I guess, showing their work and when they plug in the answer to the chart right away they would print the number or the sentence wrong. So I had to really be very careful and tell them that the chart, the only numbers that go into the chart are the two numbers that are in the story problem and finally I said, do not put anything in the chart, we're going to leave that one spot completely empty because they all talked the

answer . . . Eventually, when I did let them put them in, I gave them all red pencils and, so they could when they saw the chart they clearly saw the number that was a missing number was the one in red. They could identify with that. So I made sure that they followed the steps of labeling, putting just htose label numbers in the chart, doing the sentence, then at the very end, then put your answer in the chart. I guess some of them so good at the story problem, but yet they couldn't associate the correct sentence with the story problem. "Were there any other activities that you found maybe a little bit difficult to teach?" Not really.

5A. Were there any activities that you found were very easy, very simple?

As far as easy to teach, I would say the worm tricks. That one was easily understood. They really enjoyed it. I think the rest, a lot of them, were kind of same activities as far as . . .

6. Which activities did your pupils find particularly easy?

The worm tricks and also the straight addition and subtraction problems that were at the end of the book. I think it would be nice if we had a couple of those maybe earlier to restore the confidence. Sometimes the kids got really tired of story problems. The story problems in a certain section where there were lots of story problems which was, kind of bogged them down. Maybe next time what I would do, I would stop the story problems, can be, photo, turned to page 26 and just do some straight problems. Now that I am more familiar with it. I know that was quite easy--they enjoyed page 22 where they had the hidden letters and, oh, I find that the mistaken mysteries like on page 20, it was a little difficult for them in the fact that where they could find out for this problem is wrong that silly may be done but have a little difficulty sometimes changing the answer in the box. They want to change the last number--if the last number happens to be a box, fine. They'll change it. But even if the box is the first number, they still want to go back to the last number. Sometimes we just had to work on . . . but there was no major difficulty.

6A. Did they find some activities particularly difficult?

That kind of a problem they did have difficulty with the directions a little bit. On page 18 again . . . they had difficulty trying to fit in the work. They have to do their own work, they should be given good spacing--bigger than needed.

7. Is there material that your pupils should have covered before this topic which they haven't covered?

No.

8. Did you use all the activities?

There were some games activities that we didn't use, like, I think we used most of those. Many of them are on the outside of the booklet. There were some games they didn't grasp or, shaking dice, we just didn't have time for them. "Time was the main consideration?" Yes. I felt that they were getting

the activities and we should be moving on to something else rather than just staying and sitting, so I did skip some although I am glad they were there. So they could choose if I wanted them and I may choose out some activities planned with the kids later on.

9. Did you change some activities?

I jsut added some different fun games. Once they have been working hard all during the class, or whatever, at least two or three days a week I like to stop five minutes ahead of time and play a game so they leave thinking something light. I want them to want to come--I realize it's work but still enjoy the class too. The only thing that I changed, when the children found the correct answer in the story problems I would have them write the answer with a red pencil. Minor, but that way when they saw the problem they could quickly see and I could quickly see which was their answer or if they put it in the chart I had them use a red pencil so they could see which is the number they discovered and which were the two original numbers. I had a great deal of difficulty getting them to understand that the two numbers in the story problem in the chart and those are the two numbers you use in your sentence. Otherwise I followed it pretty close.

10. Did you add any other activities to this topic?

I think there's a couple on worksheets about the same format of the story problems. "Like page 2?" Yes, something like that. That we put at the end because really the topic inventory at the end of the book, the majority of it is story problems and the days before the topic inventory there were no story problems. It was all just straight math and I felt if they're going to be tested on the story problems, mainly on story problems, they should have some close to the time that they had it. So I gave them a little extra just to review their mind about labeling in the charts and things like that, 'cause a week or so difference between story problems and the topic inventory.

11. Do you have anything else you would like to say about the topic?

Now I'm getting into it. I understand the charts and everything and I know how I should explain the charts next year when I start at the beginning. I think it will be a little easier to start with. I think the charts are a very good idea. To see the part-part-whole a lot better. It is nice. I don't know if this pertains to question in the booklet, but one thing I found, I'm sure it's by accident but it was kind of nice, when the books were put together, every once in awhile they have like page 8 they would have story problems, but the page across from it was blank for some reason. I found it nice because maybe I'd give him a direction and I'd say well, you know the empty page next to you right now, I'll give you 30 seconds, please draw the outline of a haunted house. Okay, now back to your work. Ten minutes later, okay now draw some windows. And every once in awhile I would get stopped and they could add something to a picture at the ending. A neat picture they could show their friend. It was just kind of nice to have some open paper where the kids coudl do some extra fun things. Sometimes I do, okay, especially if I got to a page that had lots of problems on like maybe 17. Good practice page, but it's basically boring once the kids get into it and I say, okay after you finish four would you please just maybe draw a pumpkin or something to your picture. Add something to your picture. Do

Do it. And I make sure they just spend small amount of time with the picture, but yet it was something interesting. Then they go back and do some more. It keeps their interest going 'cause after awhile they get really tired of just straight drill. I hope the accident goes into the book because they really enjoyed it and I enjoyed it too. It makes their book a little more unique when they look at it later on and they go 'look at all those math problems.' They can show their haunted house or, it was kind of fun. On page 25--magician's things--they enjoyed that chart. The map on page 24 was nice, with the pictures on it. I know in the past they had some kinds of thing where they had cities instead, but I feel it was a mistake to name the cities whoville, whyville, whatville, and they all start with w's and the kids were so confused and so quickly forget which 'ville they're talking about. But the pictures were just great. Generally I thought it was a nice topic.

Topic S-4 Teacher T School Y October 30, 1979

PLANNING

1. Do you plan alone or with others?

Generally alone, but I have a lower group and I talk to the other teachers how specific activities went with their groups with some feedback on that. That's been real helpful. Teachers have said 'I've had a real struggle with it and I have sharp kids, so you might want to modify it or don't be surprised if it doesn't go over like it's supposed to.' Generally alone at least 75 percent of the time.

2. Do you plan day-by-day, activity-by-activity, topic-by-topic?

I try to plan a week at a time, but it's really flexible depending on how fast the kids go. I have had to slow down and add additional manipulative activities and that kind of stuff too, so weekly plan is just an overall or just where I would like to be by Friday. I do plan day-by-day as well--that's more fruitful--but I do try to get five lessons. I guess my big worry would be in the event that a sub would come in or something, just to be ready a couple of days in advance.

3. Do you use other resouces than the topic materials?

For this topic I had to add some of my own--one day it was impromptu stuff because the kids weren't catching on. And another day I did some stuff on my own, not really other prepared materials but I used the materials from the kit and maybe in a different way.

4. Are there pupils for whom you plan specially in the class?

I only have 13 pupils and they are all, we've been working--like when there are three or four adults in the room we've been breaking up into real small groups and so kids are getting pretty much individual attention. There are a few that are behavioral problems too so that they're on a pretty strict schedule as far as by what they achieve for the day. It's a little different than a regular classroom.

DIRECT INSTRUCTION

1. Do you group your students? How do you decide to do that?

When I began the topic we tried to keep all the kids together, but there is quite a range of ability even in that group as far as attention span and math ability, but the top end is not advanced enough to be moved up another whole group, so that I did get the feeling that some kids were held back and other kids were lost and so we have an aide that come in. Title I aide. So when she's in the room we group into two groups and with my student teachers there are three groups. The day the Title I aide isn't there, then the DMP aide is there so it's usually two or three groups. That has been working out well. I don't know about the next topic, how I'll have to do it, we'll just have to see. "How are those groups made up?" Well, I noticed the

split when about half the class is catching onto the whole-parts concept and using the charts--they were ready to go on and could work more independently and so those kids were with the student teacher. And the ones who needed the one-to-one I worked with. It's a matter of pacing as well as who needs more manipulative type stuff, who needs to be kept on-task, behavior type thing, even though the understanding might be there it's the old attention span.

2. Does that grouping change any?

Yes. We sometimes start out with three groups and pretty soon we're, say, three groups of four or something like that and pretty soon we're down to a group of nine working independently and a group of three that are still getting individual help. The change is based on how well the kids are doing in class. If they are doing fairly well, the group changes.

3. On what basis do you decide whether an activity should be seatwork or teacher directed?

Well, let's see. In the beginning a lot of the stuff was teacher directed because of the new concept. Then if I realize there is--I guess really what it boils down to is the ability to do it alone. I try to let the kids that can independently go ahead and the slow group has very low reading ability so it's very hard for them to do anything that requires reading on their own. Maybe two kids can go ahead with the reading, but even day after day in the same problems they didn't have the words more or how many, they still were struggling with those so it was just a matter of some kids wanted to go ahead but just couldn't. I had to have the stuff read to them.

4. How do you decide how much time to devote to an activity?

I guess it really depends on the attention span that day. When we first started the topic it was real difficult, the concepts weren't coming easily. It was quite usual for us to do six problems in a 35 minute period and that's all they could get through. And it was that I would have to start off by saying if we can get problems one through six done today, we'll play a game and it was either the number game, sometimes it wasn't a non-math game, because they were real anxious to play something and some days we had maybe 2 minutes out of 35 at the end of the period then to try (inaudible) six problems so if we really get bogged down with the workbook kind of stuff I just have to shout occasionally. So it's really difficult to plan because it depends on the, just the ability for kids to listen. There's a couple of very disruptive students--a lot of it depends on how they're going. Because if I can get those kids on-task then the class goes fairly well. We seem to make some headway if I can have those kids by my assistants or they can be doing something, get up and move around and get the--that helps them to settle down more. It really depends on, the more I think in that at least on this topic, on the behavior as much as whether they have the confidence or not. Even though some kids could sit for 35 minutes and do problems, other kids would need a break or a different kind of an activity--flash cards or something like that--just to vary what's happening.

5. What type of evaluation of students do you favor? Mastery or non-mastery?

I think I could probably look through the achievement monitoring and just about tell you who goes to do what, but I dod like to have a form of evaluation. Well, the materials provided with the topic inventories and that kind of stuff and their daily work. The topic inventories are generally, as far as I know, are little bit easier than some of the pages that they were doing so when I send a booklet home there's usually a letter with it and then if I have any specific comments on that individual child's work I write that on it. Because there might be some pages skipped or there might be pages that, some pages that are put in for the preparation, preparatory to another topic and the kids don't have to master those skills before going on. So I try to explain that to parents too and take them into consideration--that if they haven't done well on a specific page number not to panic because it will come later. But I use my own judgement and just daily observation but, like I say, I like to have the topic inventory at the end of each one. Cause sometimes kids can kind of get lost in the shuffle and then they have to work on their own then. It's a--I think that the inventories are really pretty good. Basis to judge. In the event that a kids really bombs out I usually try to take work one-to-one and see if there was a misunderstanding of directions or what exactly it was.

TOPIC INTERVIEW

1. How important do you feel the topic was?

I have kind of after teaching it once now I feel better about it; but I really felt sort of lost initially because I wasn't familiar with how they were going about presenting it and, which I think is true with any new material. And I think the whole-parts concept is a good way to look at it. It's a little different way for them. I think, I don't know how they presented in the first grade, it might have been better to have some whole-parts activities before they got into the charts. So that maybe I should have looked through so I felt a little bit better that they did know what I was talking about--the whole and the parts and that kind of thing. I think it's good way of looking at something, although I'm wondering if for some of the slower kids you have to make sure that every single person understands it if they're doing the adding and subtraction. Well, I don't know, I don't want to put the cart before the horse, but if they already had the adding and subtracting concepts if that's confusing to them. It seems to be a, I would think if they have enough manipulative activities it would work. I think one thing I would add at this point to this program is supplementary activities materials for kids that just don't seem to be catching onto the whole-parts things. The page in there that they did with the worms going into the magic hat--that was real difficult and we did some things with cubes, a rod made out of cubes, going down into a magic box and they couldn't see how many went down in there. They knew how many we started with and they knew how many were still sticking out, so it was a similar activity. I had kids doing it coming up and actually doing that and that seemed to help a little bit. Do some more of that kind of stuff before they get to the book.

2. Which activities in the topic do you feel the most useful?

I guess probably they were all useful. There are several different ways of looking at whole and parts: I think more than the ones with the distance where they measured distance and added two distnaces together. "Page 24." This was real good because that was another way of looking at rather than counting, that was measuring distance. I think that helped a lot of kids. I skipped a couple of pages in the middle because they were really having to struggle with it and they were getting confused because they'd have, like on page 17 for example, the problem was a subtraction problem but to get the answer they had to do an addition problem and that was just really so a couple of pages in the middle I just skipped. I'll just have to keep going on that later. "Were there any other activities in there that you felt were more useful?" I would say they were all good, with exception of those pages around 17 that were very confusing as far as the kids were doing it I think in their heads, some of the kids they couldn't, they realized they had to get the right answer but I don't think they realized they had to add in order to find out the problem. It was in the answer to the subtraction problem and a few kids kind of did it intuitively, but there was no way they could write it down, but the rest as a whole were fine. I had to read all of the story problems with the kids because they weren't at that reading level.

3. Were there any activities besides the ones you mentioned that you consider unclear?

No. Once we got down the basic idea of the charts and stuff.

4. Were there any activities you consider extra that shouldn't probably have been in there?

No, although, no I guess not. I wish there had been more of the type with the magic hat.

5. Did you find any activities complex to teach?

No. Not once I learned (inaudible) I think there was a little conceptual problem with page 25 of the graphs although I tried to explain that we weren't subtracting cards from halfs, that kind of thing, so that they weren't saying they were trying to find the difference between, and that was difficult for them to write on their onw. We did use cubes to match the graphs and they weren't really subtracting--they were adding. If it was 14 minus 12 they were saying they could see the difference was 2 there and I tried to have put the two stacks of cubes together and subtract the 12 that matched and see how many were left. Most of the kids got it, but I think there is still quite a number that are kind of foggy about that.

5A. Were there any activities you found very simple to teach?

Some of the things that they had to color to find the correct problems. "21." Color in the ones that were correct. Those are ones kids--nonreading kids--can do on their own and they like that. It was easy for me, but they felt so much (inaudible) 'cause they could go ahead at their own pace and do that or finding mistakes--they like to do that kind of stuff where there

wasn't reading involved. So any nonreading activity was fairly easy.

6. Are there any other activities that your pupils found particularly easy?

No. Once they caught onto the concept it seemed to go better. They had particular problems with pages 15 to 19. Those were only partially completed. When I send this book home I attach a cover letter explaining that the kids mastered the concept even though there may be a few pages only partially done.

7. Is there material which pupils should have covered before this topic which they didn't?

No. I thought as a whole that they were probably better prepared than I was.

8. Did you change any of the activities that were in the book?

I don't really think so. I don't know if I would change it anymore when I teach it again. It was a good activity to have, like whole and parts, label the wholes and the parts. They could understand that and it just took a long, long time to get kids to always remember that the whole number went at the top. Wow, it was like a broken record!

9. Did you add any activities?

Once we spent a couple of days with, I had a magic box instead of a magic hat and we're using that, putting cubes down into it. Even, like, when the kids came up they would make just a huge string of cubes maybe 30 or 40 and even though they couldn't get the answer, they knew it was 37 and there were 14 sticking out, so the number down in the box, so they were getting the concept that way. I think manipulation is good, but it also gives the kids a chance to get up and move around and interact. At least for my group that was real important as far as the behavior goes and it was reinforcing knowing that they had to pay attention if they were going to know how to play the game and get up and do a problem themselves. In that respect I think that would be maybe one area a supplementary activity, I would think for the lower classes, but initially for all classes to start out that way--but it was symbolic. "Was there anything else you added?" No. At the very beginning I made up a couple that were followed the same format. "Worksheets." I think the coder had taken copies of that. There may have been a seasonal one that, I know tomorrow we're doing a halloween one.

11. Do you have anything else to say about this whole thing?

All I can think of was at the very beginning and I got this (inaudible) come at me, my lack of knowledge on what they did last year. But I thought I should have separated the addition and subtraction problems a little more for my group because the, I think it's alright to say, have the kids be able to differentiate between go away or som go away or some won't, more come, they know whether to use addition or subtraction. When they started using the charts I think it was real confusing and maybe it would have helped

to do all the addition problems and get that ingrained for the slower kids where the parts go for maybe a couple of pages. Just do addition for maybe a couple of pages--two numbers at the bottom of the two parts and those were adding and then switch. That just seemed to be a little more logical because it was confusing sometimes they started knowing the whole number and one of the parts and sometimes they didn't. Maybe that's how they start out in first grade with all addition and then they switch to all subtraction. But I think that at the beginning of the year, if this topic is used at the beginning of the year then I think they need to do that. Then start mixing in slowly. They started mixing pretty soon. It bothered one of the kids that this is supposed to be as big as the whole and you notice that this was thinner. "Page 26. Oh, I see, they were looking at size rather than." Not relative since between the eight and the six--he thought that that should have been the same size? Isn't that strange? If these were two parts and they equaled the whole, they should be the same size on the chart.

Topic S-4 Teacher U School Z October 17, 1979

PLANNING

1. Do you plan alone or with others?

I plan alone or with my student teacher. If I have a question, Teacher K and I teach the same topic, she's a little bit ahead of me, sometimes we confer with each other.

2. Do your plans take the form of day-by-day plans, or activity-by-activity plans, or topic-by-topic?

"How generally do you plan?" Generally, when I sit down to plan I plan a week ahead of time and I plan each day. I don't necessarily take a different activity or different topic every day. Depends on, I think it's just unknown which children if, you know, one topic is going to take longer then I spend more days on it. Generally, by the end of the week or plans have changed because, usually it's not because I've had to move ahead but because I've had to repeat or reteach or else they have had to spend a long time on certain topics.

3. Do you use other resources than the materials you are given?

Usually not, except for what I have in my head. I mean, you know, like some things I read I teach in a little bit, I don't teach exactly the thing . . . "I mean, do you use other materials like worksheets or other games that are not in the activity?" A few other games that we made ourselves. The basic facts when we had to, that introduction to fractions, a few fraction games, mostly games. I encourage them to use flash cards.

4. Are there pupils for whom you plan special?

No. I just spend more individual time with them usually. When I plan, if I know certain individuals might have more trouble with the topic then I gear my plans so that I can be sure to include that child when I plan (to think about that child).

DIRECT INSTRUCTION

1. Do you group students internally within the class?

This year I haven't.

2. Does your grouping change or do you think it will change?

It's a disadvantage in teaching this program to group them. This is the first year, however, that I have been able to not because of the wide range of abilities I've had to use before. I found that introducing a topic you have to spend a lot of individual time with each child and if you have groups it's almost; unless you have another person in the room it's almost impossible. If the small group of children don't understand it, a certain concept, usually

if other kids can go on with an exercise as in a topic that they can handle; we have pulled out small groups of children to look at them but it's never the same group of children. It might be children who have been, we haven't had to do that lately, who might have trouble and just once would simply carry just for those kids.

3. On what basis do you decide whether an activity should be done individually or whether you have to direct the whole thing to the whole class?

If I feel that they understand the topic and they can handle the material on their own, then I give it to them to do individually. If I feel like they need a lot more direction or, sometimes I found that some of the exercises with these children, the reading vocabulary is difficult for them to handle and we do it together. Sometimes we do part of the page together and they do the rest on their own.

4. How do you decide how much time to devote to a particular activity?

Till I think they get it. If they get it quickly then we don't spend as much time on it or we'll cut an activity or we won't finish a page if I think they need to complete a page to get it done, or if they need to work on it another day. I don't push them until I think they understand the concept.

5. What type of evaluation of the students do you favor (mastery kind of evaluation, testing internally in the class)?

"How do you evaluate your students?" No. I do a lot of individual working with the moving around the room a lot. When I correct their books, usually at night, pages that they've done I keep my own coat on the cover on the book so that I know very much even on the inner topic or even after the first few days or all the way through where each child is. I write my own comments. "Basically an ongoing process." I prefer that over testing actually. I don't think testing, I don't know, I don't think sometimes well tests are good. Well, I just think that children this age I get a lot better input and I understand a lot more what they are doing if I can handle them individually everyday. I know much better. I wouldn't have to give them topic inventories and I think I know. If you look at their everyday work and just how they are handling it and just from their expressions and you can tell if they are having a difficult time or not and you can understand that more than the answers might be on a test. As you work with them individually you can see what process they are doing to solve a problem. When they do a test there is all kinds of ways they can arrive at a process or an answer and it might not necessarily be the correct process. "Do you feel mastery is important?" For some things. "How about this topic?" Yah, because it's basic to solving problems.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

Well, I guess I think this particular topic is very important. I know that having taught this program in years when this topic was not treated so specifically or was not even really here 'cause it was rewritten in place of other ones, it was much more difficult to teach the concepts because--this isn't even a substitute it's a supplement which is extremely important to problem solving, the whole process of problem solving. I found what was missing was, just it was hell to try to teach it--open sentences--and at least it was too abstract for the kids.

2. Which activities in the topic did you feel were most useful?

I think getting them to really use charts, the whole-part child, I find it extremely important that they label their numbers in a problem with w's and p's, just because I think it's extremely important for children at this age when they solve problems for them to be able to dissect or take apart sentence or problems and be able to identify the components of it. For instance, which are the wholes, which are the parts, which, before that even, to be able to pull out the significant numbers that they are going to need. In other words, to pull out the specific information that they need. Sometimes that's difficult with children this age to get. I thought they could see it concretely (inaudible) that was very good. Even towards the end the maps to counting the steps, that's a practical step that they'll use later on. In getting the concept of add or subtract, I really, some of the, in working with them too in reading the chart correctly and know what kind of a number story right by the information given on the chart. The word problems I think are very, well that's good, it's all about, but visually really working with them to read together and learn how to read a work problem--how to pull out the specific information that they need is very crucial.

3. Were there any activities that you consider unclear?

The one activity that I'm not really fond of is on the one where they see incorrect answers--the crayons, 3 + 2 is 4 on pages 21, 20 and 21. The only way--it bothers me for a child to see an incorrect answer, but a good thing I guess it's how you handle them too (inaudible) take a red pen and cross out what's wrong. Sometimes, maybe, it's just the teacher in me, sometimes it bothers me for a child to see incorect answers. Some of the it confused. Especially those who have more trouble learning. It was very difficult for them. These three choices on page 19, they were suppose to choose an answer which was below and then circle it, one of the correct answers, but there weren't any. I understand what's trying to be taught, but I'm not sure a child at this age is satisfied with that. I had a lot of children who just stood on their heads to try to make one of these answers fit. I think it's just deceiving. Really, it's not what is supposed to be taught. "Were there any other activities that you thought were particularly unclear?" This one was a little hard for them too. They did it with you, but the code, I think what we did, and I knew this ahead of time because I've had it, one time I tried to do and let them do it--we did the bottom together. Just because, and even then some children had a very difficult time. If

they had an incorrect answer they had a very difficult time getting the letters. And then switching them. I can see for a more advanced child or a child who could be challenged a little bit more, that would be a really fun page. I don't put too much weight on this page. The words too, like bicycle, are really questioned if a lot of those kids knew how to spell bicycle. I didn't find that none of the topics were really that unclear. I guess my advantage is that I have taught it before.

4. Do you think there were activities that probably didn't need to be in there?

I would say that page 18 could be supplementary. I guess that 20 and 21, and that is how we use these pages--as supplementary. It was more like, if you finished your work you could go on but you weren't required to stay and finish it. Page 27 was extra but fun. On the first example on this train one--7 + 6 is 13, 13 take away 4 is 9 and then you have to have that 9 in order to get the 7--but that doesn't always work in our room. But I was noticing when I was teaching it, like here okay, 4 +7 is 11, something take away 3. I mean, they didn't get either of the answers so anything could have been put here and anything could have been put there so it didn't like follow through and when I was teaching this particular page I was saying, well now you have to have the right answer in each step or it is not going to come out. And it would have been really cute if it did come out in each instance, but it didn't. It didn't always matter. I guess what they were saying, though, is that if the first number and the last number ended the same, then you follow the correct sequence. I didn't even get that 'till now. Oh, well.

5. Were there any activities which you felt were hard to teach?

We may get to open sentences. I think it starts on, oh, to back step--I'm not sure I like the idea of them trying to figure these out on their own. "Page 14." Before they were introduced to the right way to do it. Some kids taught themselves some bad habits and very hard to erase. Starting with 15, I'm not sure which topic number it is, but when they saw an open numbers sentence and they filled, put in the p's and w's and filled in the chart, what they tried to do when they wrote the number story was not use the chart but go back and so many times I had 5 + 6 = 11 instead of the process that they were supposed to use by using the chart. They filled in the chart, but then they didn't use it and they had been used to using the chart, but what I had done before and I didn't do it this year, which I am going to go back to doing, is right from the beginning when they start using the chart where it's either part or whole missing, they put a little 'x' to indicate that there's no answer that fits in there. They don't have the answer--it's not given--so that when they write the number story, and Vicki suggested and I think she is probably right, that they use a chart but then they never, they do not fill in the chart. They use the chart to write the number story, but they do not when they get the answer, they do not fill in the chart. Some children would try to use just the chart to fill in the answer and they did not, so they weren't really using the process. They knew the combinations that went together, but they weren't using the thought process. I think that would help because that was one thing I found hard to undo once some kids started doing that. Especially some of the really obvious ones like 4 plus what equals 6. They knew that so easily and it

was really hard to make them go through all the steps. Some got really confused when they saw that they could do that a few times when they went to write the number story. They still had an open ended sentence and they didn't know what to do.

5A. How about activities that you found very simple to teach?

The ones at the end which were just more direction than teaching actually. This one took a little more thought . . . "23." . . . not necessarily solving the problems, but they didn't understand the concept of betweeness which it doesn't really say there more than, less than--some children still have a lot of trouble with that.

6. What activities did your pupils find particularly easy?

Stuff way at the end. Basic facts.

6A. Any activities that were particularly difficult?

At the beginning they had many more errors and much more difficulty. I think it was until we got used to it. And used to the thought process. They didn't even find the worm page difficult. They found it fun. They thought that was nice. They enjoyed that. I think this topic is certainly challenging enough because they really had to work hard, but they enjoyed it. I feel good about it. They really understood the material.

7. Is there material which your pupils should have covered before this topic which they didn't?

It would help if they knew their basic facts pretty well. Most of them, but see I think there is one theory that I try to go along with, I think by the time they get to this it's incentive for them to know the basic facts where before they really didn't. It wasn't really, I guess, part of the program of philosophy is that . . . they don't push basic facts 'til they understand the concepts. So, but when they get this far then I'm really pushing it and that's what's going home with their note. The end of this topic that, that is really important just for efficiency in speed, because some of them could spend 10,000 hours doing 3 problems just 'cause they don't know how to, you know, they don't have the answers at their fingertips. Validation is extremely important all the time even if they know the answer. I think it's important once in awhile to get them to validate. Greater than and less then probably, I don't know how much it's emphasized, I knew that one topic was taken out. I'm assuming they have a lot of trouble with that. "You mean betweeness?" Yes. There's one other thing; I know Teacher I did it. If she wouldn't have done it I think that we could have had a lot more problems; because we still have kids with really severe reversal problems in writing numbers and I know that Teacher I did it on her own and if she wouldn't have we would have had a lot more. I think that's important.

8. Did you use all the activities in the topic?

Yes.

9. Did you change any of them?

One of the games we just kind of divided them into smaller groups and to larger groups--Activity S-4F. And I think there were easy activities for them to do before and after, I can't remember exactly but we had some children working on an activity they could do on their own on a topic and then took smaller groups of children to introduce the games. Otherwise I think it would have been just bananas. So we kind of made that decision on our own. And we didn't really spend a lot of time on that because I think it is extra. This, they know now enough that they can do this on their own. Which is fun for them; reinforces the facts.

10. Did you add any activities to what was already there?

Family in facts we did a little. That was more like in wording. "You didn't supplement with, like, worksheets?" No. We made it a little more personal. I felt less need at this--I'm pleased with this S-4 topic, I really am. I found more of a need before to have more sheets and stuff for reinforcement. I don't find that this time. I appreciated their stuff, the instructions, 'cause that helped me a lot. I needed that. There were really thorough. I feel good. Some of the stuff that was rewritten which was my own way of teaching the topic last year. I just think this topic is very important and I found it extremely important when I started to teach it before--sometimes you have to read the manual over a few times to make sense out of it. I found it very important. You have to be resolved that it's a long topic and you gotta spend the time and have the patience to do it. I guess I'm bullheaded enough not to push it and I'm gonna stick with it until they get it. As far as I'm concerned, I'm pleased. I think it's nice when the child can see exactly what's happening instead of just straight memorizing and not really understanding what's going on. The way it is presented, it is enjoyable and doesn't make math feel like it's a drudgery. The little extras that are included made it a little bit more enjoyable.

Topic S-5 Teacher C School Y December 12, 1979

1. How important do you feel the topic is?

I think it is important for a couple of reasons. I think that because we had topic S-4 which was extremely difficult for the children. At least now through topic 4 the ground work was laid for topic S-5. And the format of S-5, having the children do a lot charts, simple charts without the complicating number problems and then included in the horizontal sentence and the vertical sentence, they were able then to see the relationships here much better than they were after they finished S-4. There was a lot of good practice work in here which they really needed even earlier and the word problems are still (some of the word problems) confusing for them especially since new language has been added without building up to it; like, for example, how many did we start with. The pages where they have to circle more than, less than, they had to circle the most on one page and fewer on the other and do the chart in the horizontal sentence--I thought that was really good practice work and they needed all of those pages. Page 11 is confusing for second graders. When they are asked to write down and label a subject on one part of the page and then in a completely different column relate that number to that previous object, it's very difficult for them. And only a few got it with the first explanation. Then it took 5, 6 explanations and individual help before many of them saw. And, of course, when you have to do that and there is only one teacher in the room explaining and you're going around individually, some of them have gotten half through and as a result either had it wrong or had to erase their answers to that--page 11 definitely should be changed to make it an easier format for second graders. The picture relationships with the how much more than and how much less than were good--gave them good pictorial and also language experience with problems and also gave them a chance to write horizontal sentences and figure out the answer. Then, of course, we didn't do the optional ones. I like the practice work in the back where they had a lot of adding and subtracting to do. They need a lot of that. There is one thing, though, that should always be done before we introduce numbers like 10 and the advantages of 9 and the advantages of the doubles, and I feel it was really missed, and that is that we have to really build up the ideas about the double. There were a number of children in my room who apparently do not practice their facts at home and we have a limited amount of time for practice when we are also involved in this and they did not know the doubles. As a result, the explanation that you give here without any build-up, I tried to build-up as much as possible. I had about 15 examples on the board and said, now we know that 8 and 8 is 16 and if 8 and 8 is 16 then when we take 1 of those 8's away from 16 what do we get? Well, some are completely lost because by the time I said, asked the third question--how many do we get--they had forgotten 8 and 8 are 16. They really have to know it like this in order for the value of knowing the doubles to have any meaning on page 25 and 24 and any other page, and the same for 10. Many of them don't have the concept of 10 yet and two 5's mean 10 and when you add 3 to 10 you get 13. They need more practice work on that and then their comprehension seems to grow from that practice work and some build up work. Practicing the doubles, more work, more pages on knowing what the doubles are and practice work on doubles. Then this will have more meaning to them. There were a few that got it right away, but there were many that were floundering for days on this because they just didn't have the background at all and they still don't. This doesn't give them any background, it just makes it hard for them to catch up with the others who have it. You work with them individually a lot, but when so many need individual help it is hard for one person to cover that many individuals who need extra help

even though I have given them all a lot of introduction to the pages, but the book didn't necessarily call for any build-up which I think we should do. The doubles are great, the 10's idea and the 9's idea are great, and I think that it is very useful to know that and to have that well in hand. That's about all I have to say regarding this book.

2. Which activities in there did you feel were more useful, in particular?

I think the ones that had a number of pages where the children could repeat what they did so that they got a good grasp of it. I think it was really important to have the subtraction separated out for a change and it should have happened earlier. It should have happened in S-4 where they had it all mixed. There remained (some of them anyway) confusion about addition and subtraction and the differences, especially when it came to number problems. But in the S-5 it was very much better where they had a couple of pages, may two or three pages, of subtraction both word problems and number problems to do and they had it so much they understand it now much better and had far less problems with S-5.

3. You mentioned earlier about things that were unclear. Could you point again specifically to those activities which you felt were unclear?

Page 11, the chart was unclear. It should relate when you talk about a weight for a letter, the weight somehow should relate directly to that letter and next to it or in the same column, but not go two columns over and then relate with a second object. Relating to the second object there they just don't, most of them don't, get that. There are maybe three or four. And then switching in language, like how many were there to start with. I don't believe that was introduced earlier, maybe it was, but that's just an example. If you change the language in any way it throws them off. When they see how many were there to start with then they think how many were there altogether. They equate that and I have explained it to them and said it a couple of times, maybe 15 to 20 times in all considering the number of times I said it to individuals, and they had trouble with it on their tests still so they apparently are not getting it and there is some reason for it and I think we should look at that reason.

4. Were there any activities that you consider extra, maybe didn't need to be in there?

The optional ones were extra. Other than that we did most of them and I found that they were necessary.

5. Were there any activities you found yourself to be complex for you to teach?

Well, besides the ones I mentioned, page 11, the new wording in the word sentences--which I have already said. And also which I have already said, it is difficult to teach children who don't have a background in a quick recall of what the doubles are to teach them how you can use the doubles, to add it to a number that is higher or lower (inaudible). That was very hard because of that reasoning, we need more build-up. They need, too, a lot more build-up than our former program gave to them and I feel we are

missing that now, putting the ones under the ones column if they are doing subtracting, 8 from 16 in the vertical form. They don't understand about putting the 8 in the ones column and they don't understand about the 10 being in the past column--a lot of them don't. They see this as 8 take away 16, but if they write it down, they don't put the numbers right under each other and I think right from the beginning we need that even with 5 plus 6. They need to know that 5 goes right directly under 6. We were making flash cards earlier in the year and I discovered that they were not putting the numbers under each other, but maybe scattered. There should definitely be a section of some kind early in that second grade program.

6. Were there any activities you found simple?

Yes. Anything that, for example, pages 2 and 3 where they had already done a lot of chart work except they still needed to review the horizontal sentences because there wasn't much of that in S-4. The vertical sentence they had, also very very difficult is when they expect the children to draw their own chart. And then they should remember that the end of the page here of every left side has to be folded over and often there is not enough space on that end to do any kind of number work anymore so they could remember that. Also, perforated pages would be excellent. This is the kind of thing they need to take home and look over day-by-day. I feel when we send a book home it remains closed and that's about the last they ever do it.

7. Is there material your pupils should have covered before this topic?

I think that they should have had a lot more practice work on the doubles. It was just thrown into them, well you know what the doubles are now use them in addition and subtraction. More work on counting by 10's, 2's, 5's, 3's so they get this double and they understand 10, how it is related to 20 or how 5 is just a 10. Very difficult were the coins for some, many of the children because many of them don't understand two nickels and a dime. Many do, but many don't. We need to concern ourselves with ones how don't.

8. Did you use all the activities in the topic other than the optional?

As far as I can recall, we did.

8A. What made you decide not to use the optional ones?

Time and they seemed very complicated and they seemed not to add to the children's comprehension.

9. Did you change any of the activities?

It seems to me there was something we didn't cover because it was difficult, but at this point I don't remember what it was. We didn't change them much, no, any chinging I did was verbal as far as restating a problem so they could understand it better. Getting at it from different angles, calling children to do it on the board, just trying to do it--I feel generally that a lot of this is really very difficult for second graders and perhaps something;

I think the ideas are fine, it's really great, but there are so many that are having some difficulty with it that perhaps we should look into what's in the second grade mind and how it operates in math and work out some way of getting at these problems before they become difficult, because I feel math is really easy and can be really easy and that really difficult concepts can be introduced in a very easy way if it is done with the second grade mind in view.

10. Did you add any activities?

We added some addition and some subtraction and some games. We had very little time, but what we did was adding practice work mainly. That's what they need more of and there should be a lot more pages of practice work for them. Very simple practice work, there's often too much on a page and it's hard for them then. This book is better, but some books are, like here, you see how it's folded and have trouble writing here and hten you have trouble reading it and correcting it. So we have to watch how much is on it. Even this is a little bit much on a page. It's okay because it was divided and all the charts were put in for them so it worked out okay. Some children had trouble getting the numbers in this space.

Topic S-5 Teacher J School Y December 12, 1979

1. How important do you feel the topic is?

Extremely important. It's the basics of addition and subtraction.

2. Can you remember which activities you thought were most useful?

Well, I think they are all useful. There might be a few more that you might use, more manipulative type things. Most of them, there wasn't that much of a contrast of what's good and what's bad. I think it was pretty well done, but if you could think of some like the first one we had--the worms . . .

3. Were there any activities that you consider unclear?

No.

4. Were there any activities you considered that were extra in there that didn't need to be?

No. The games I think are a little bit complicated. You really have to spend too much time to do it.

5. Did you find any activities complex to teach?

No.

5A. Were there ones that were very simple?

Well, the regular addition and subtraction. The only criticism I have about those I think would be intermixed with the story problems. Page after page after page at the end, and the kids become very bored. If you could have a story problem--in fact at the end I am throwing in--I'm having the aide write a few more pages of story problems because they get page after page of that and they forget the story problems.

6. Were there activities your pupils found particularly easy?

Well, the regular computation. Most of them did pretty well.

6A. Were the rest of them pretty difficult for them?

Fairly difficult. This is a next to the lowest group. The story problems, they do have problems. The wording of some of them is where you change the wording in the subtraction type of things. They'll switch the wording all of a sudden and then they can't figure out which is the whole, which is a part.

7. Do you think there was any material your pupils should have covered before this topic?

No.

8. Did you use all the activities?

Yes, except the last game. It just took too long, and was too complicated.

9. Did you change any of the activities?

No. I have added, especially where on some of the pages where the kids are, we've got the wide range, some of the kids can go on of course I won't hold them up, so they go on until they get to a certain point where I think all the kids should kind of catch up pretty soon then I'll throw in other types, similar types, of worksheets. Then at the end, now I'm putting in some more story problems.

11. Anything else?

I enjoyed it. Can you tell me when they get to the point of learning where places are? The 10's and the 100's. I'm finding that in the vertical sentences they had no idea where to put the 1's and the 10's. That's my major concern at this point.

Topic S-5 Teacher K School Z December 5, 1979

1. How important do you feel this topic is?

I feel it's very important. I can still see where they have not yet mastered it, but I do see it as important in terms of continuing what was begun in S-3, S-4.

2. Which activities in the topic did you feel were most useful?

The ones that were most useful on the whole were the game type things whereby the children can use themselves as examples or use objects and material. I guess those were the most fun and they responded better to that.

3. Were there any activities that you felt were unclear?

Not so much unclear as maybe too difficult for this age level. For some, given the variety of children that you have in a room, for some they can grasp that Nelly nine idea--the concept of nine--but out of the entire class only, I'd say at the most, four or five actually really grasped it and were able to do it. The others were really lost so I just sort of let it go. I didn't want to push it so much to make them confused. That can be confusing. I would say maybe save that for S-6 as a challenging thing. "Can you point to a specific activity in the topic where that was most evident?" Well, in the student text itself, pages 27 and 28. They can see a pattern going down and going up, but trying to explain it was very difficult and so that they can understand it. I think the explanation is very clear in the manual, but I also remember that I had to look at it myself several times to make sure that I was saying the right thing to them and I had to keep on doing it.

4. Were there any activities in the topic you felt were extras that were thrown?

I'm not sure these were extras, but I can tell you what I skipped as a teacher. S-5H was optional. The only thing I used in that and that the children loved a lot, was the Beat Wanda the Winner with the dice. The daily contest. And the long story of short sticks. They seemed to like that. I did not use sentence bingo nor this, or more, because I used those last year and I found them, I had a hard time working with them. I don't know if the kids had as hard a time as I did, but I just decided it would be better. And the mystery container game. Those were the three that I used. The others I just left. I didn't even attempt to do them. I did not do the one with the adding machine tape, and activity S-5D. It's an alternate S-5C. I guess I just chose to do S-5C instead of D. I didn't want to get into the guess button and the transparent tape. I know the other group did.

5. Were there any other things besides what you mentioned that you found hard to teach?

Not so much that I found hard to teach--how can I explain it. The format of the book in terms of the children working in the text, my only thought was if they could have fewer problems on page and have more pages--in other words, these are so small for them to work in, for example, on page 3 of the student

text. To me it would help if you had fewer problems on a page in terms of the children working. I just found it to be difficult. The sentences are hard, they seem to grasp it, but when it changes from a difference sentence to an add-on where they don't necessarily ask how many altogether but how many were there first, the children have a very difficult time with that. I'd say most of mine didn't get it. Whether or not I'm going too fast or not I don't know. But it would help, just need more room--when the kids are working out things that's awfully small for them. They actually write bigger. I figured half that size, but they got on a lot--I'd say they liked it a lot. They liked the activities. The chart--where they had to look at a chart--how much bigger is something than this. That was a challenge for them and it seemed to be more fun in some instances than the work problems which I'm sure . . . You know when I liked to work problems, I like to try to point out the, you know, what they're saying, but it's still hard for them to grasp.

5A. Were there any activities that you thought were particularly easy?

Some activities were easy to teach given a demonstration on the board or given a demonstration using the overhead. S-5E I used the overhead a lot on that. When using cubes as counters rather than chips and links--using cubes seem to be the best way for them to see the difference. So I always resorted to cubes--it does say use cubes, links, or chips in certain activities and I found it easier to use cubes because you can line them up against one another and see the difference, therefore they can see it. It's the difference of how many, it's easier for them then using links. It gives them more of a success factor. The doubles facts was easy to teach. They seemed to like that. The test was each to teach. Things like the mystery game and all those were fun and easier. There was one other thing I wanted to say--it did suggest in activity S-5F the second part--it's not necessary for the children to master any of these methods and not to spend a lot of time on them. They are just suggestions. In terms of relating it to 10, I did that with the entire group together. We changed the first number to 10 and decided how many we added on to make 10 and then we took that number away from the second number, but we did it altogether. That was difficult. Some are ready for it, but the majority weren't.

6. Other than the activities that you already mentioned, were there any activities in particular that your students found easy?

I don't think so.

6A. Were there any others that you found difficult?

No, just Nelly nine and the 10 relating it to the 10. And the one word problem with how many there were to begin with which requires an addition. That wording always seems to throw them and I know we're trying to get them to get the concept on what they would do, but they still have a hard time. We still need a lot of work using manipulatives.

7. Is there material which your pupils should have covered before this topic?

I think they were prepared for it other than a few extra things that were thrown in. I can still see where they're not anywhere near mastery. They still--I'm starting now to drill on basic facts. We haven't before--they've lost some of that, but I wasn't worried about that. Now we're getting a little more concentrated.

8. How did you choose exactly which activities you're going to use and which ones you didn't?

For the most part, given the children that I had, I choose according to their needs. I do have a large range--it's becoming more evident--between those that really catch on and those that are having a difficult time--so something that would still challenge the better students or I could let them go on and do a few pages on their own and work with the others, but something that would not be too difficult for the others. And then sometimes we just had to work through it together and suffer the consequences. "So, mostly on the basis of individual students?" Yes. I'd hope so and what had worked before and what didn't work for me before.

9. Did you change any of the activities?

Other than using cubes, that was the one thing. In setting up stations we just changed a few things to accommodate more children, but they weren't in terms of the content, just number maybe.

10. Did you add any activities?

There were a few things that I added just to review. Some were worksheets and that was usually to accommodate those that got finished first--which were basic facts and coloring and some of the others I think I did a lot of group activity extra with their bodies. Using their bodies saying story problems--using the same story problems going back over them and letting them do it that way. There was something that I thought was really neat at the time, but I can't remember.

11. Anything else?

No. I was just a little apprehensive in knowing that this is the topic before the mastery topic and, therefore, I questioned myself as a teacher if I had gone too fast with this particular group. Because I know after 31, which we've not started topic 31, will be into S-6 and was hoping for mastery. I'm not sure we're going to master it. "You've given tests on this, haven't you?" They just brought them back today, I haven't had a chance to look. I did use a lot of these things that are in written form after I corrected the child's book and saw the ones that they had wrong. The ones that the majority might have missed. That's when I did it orally. Then they'd either use--go up to the board . . . "Individually?" . . . the whole group, but they'd all be together and they'd be involved. I'd say, so and so pick out four people--what information is given to me. A lot of repetition. Orally, it seems that some kids depending on how they lear can get it better orally, when they hear you say it. When they read it on their own they're lost--then there are others vice versa.

Topic S-5 Teacher S School Y December 12, 1979

1. How important did you feel this topic was?

I think it was a very good review. They need a lot of practice and it gave them a lot.

2. What activities did you feel were most useful?

I think the topics where they were doing a lot of straight adding and subtracting, some of them still need that, I think, and do a lot of the story problems. Some are getting better at that. A lot of kids need a lot more drill. They can get the story problems faster and easier if they knew the basic facts.

3. Were there any activities you considered unclear?

I thought the topic that included page 17 was unclear. I thought the chart was not very clear. I think they should have had a really clear chart and they could have marked off every . . . okay, they marked off number 2, number 5, number 7, and number 9 and the children had a hard time following it. Cause here the lines are far apart and here they're close together and unless they look at the size and count, some of the kids just counted the lines. I think it should have been very, ah, well (inaudible). Also the one that included work page 11. Somehow I think it should have been divided up a little bit. You've got the letters, the guests--oh, no, I'm sorry, I'm thinking of the wrong one--I remember at the time we were doing it the children got confused. I know there was a chart and you did this part of the page, the left side of the page, and then you did the right side of the page for more practice and they got confused. They thought you were supposed to go all the way across. Really, you were supposed to do one column down here and then go back to the top and do the right hand column. I thought it shouldn't split on two pages. Maybe I was mistaken that it was from the other book. Generally (small comments) pretty clear.

4. Were there any activities that you figured were extra?

Like page 23, I treated as a challenge (inaudible). It's very interesting for some of the children--some of them really felt defeated when they go, something plus 4 goes 14, is a very good like a 10 page they called it, but I think it's definitely a challenge page. Certain kids can achieve it and others are really frustrated.

5. Were there any activities you found complex to teach?

No, I don't think so.

5A. Were there any activities you found very simple to teach?

I'd say they were all rather simple.

6. Which activities did your pupils find easy?

At the very beginning when they had circle the largest one and write the sentences. Although on those pages I think too many activities were crowded on. Also, so many times when the children have to write their own sentences they don't give them enough space. It's a mess.

6A. Other than page 23, were there any activities the kids found really difficult?

The other one I treated it as a challenge page of course, like 33. The last one, again it's very interesting for some of the students, it's nice, but I treat it as a challenge page for those who want to--except for like 23 and 32 and there's one other page but that had, well it was a good experience. Again, it was treated very well I though with, ah, I think it was page 21; well, one of them happened to let the kids try and discover how to figure out something take away 4 and it wasn't a page where they felt they were required (inaudible). I though that was treated very well. Some of the kids enjoyed it, a lot of them knew they may have trouble but, like, when they got to 23 'cause they had done all these other ones, they felt they were supposed to know this and some of them really felt bad about it. Well, the other one was treated in a very good manner.

7. Did you think your pupils were, well, prepared for this topic?

I think so. "Do you think S-4 gave them the background they needed?" I believe so.

8. Did you use all the activities?

Not all of them. Ones like when there is a game on page 16 on a day when certain kids needed additional attention, the other children went on and did the game on page 16--the same with page 31; again, kids who needed help I worked with them and the rest of the kids worked (inaudible).

9. Did you change any of the activities?

On page 31, the game that went with it I had, rather than having Wanda I had them do it with a partner. (inaudible) It would be nice if they could do it that way, but either way is fine. "Any other changes you made?" No.

10. Did you add any of the other activities?

I added more drill. Flashcards. Some other time tests I had just made up. I did, in conjunction with page 23, to help some students I had to make charts and before they made the charts I talked about typical problems in that really a problem you cut in half which . . . right at the equal sign and both sides are the same, but one side is the working side. I also talked about and asked them which one is the working side. They all said, of course, it's the side either you take away or add on, that's the working side. Through that I said, when you are on the working side whenever you subtract you always have a whole taking away a part, and that way it helped a lot of the children to figure out sum take away 10 equals 8. A lot of them, when they see a take

away sign, and if your whole take away 10, they say, oh, 10 that must be the whole. Then we talked about the working side, you always have two parts and it equal the whole. Then I added on.

11. Anything else you would like to say about the topic in general?

I was a little curious where it said the activity S-5B, it says in this activity for the first time the children will write and solve different sentences. They have been solving different sentences all along. I was a little puzzled. With some of the problems they would write, like for, here's a seven more join, okay, but they printed the word seven--I think it should be the numbers. I don't think the children--if they can read, great, but still if they have trouble with words (inaudible). Also, some of the sentences got a little more complex. Some I'll just make it plain, just flat, short, simple sentences.

Topic S-5 Teacher U School Z

ACTIVITY BY ACTIVITY

I don't think that any of, there wasn't anything they don't know that they should have known. S-4 topic report is in S-2. S-3, we prepared them for S-5. I just find all the S topics (inaudible) before we have S topics that it's extremely difficult to teach (inaudible). The thing I go for word problems, that if the teaching helps me and it helps the kids and they, doesn't have the step-by-step processing--I think they need it. Maybe not motivated (inaudible) my kids to circle the numbers in the word problems that they are more aware of the given, and to label them right there inside the word problem with the w's and p's. If they can do that in the context of the story it's usually easier.

Do you think the thing that has made it easier--that's made the S topic easier--is that they always use a canonical sentence? They haven't, up until now, had that unknown.

Sometimes it's so confusing, but if they do read it and they can pick up the w's and p's--the wholes and the parts--before then they're able to (inaudible). Then I talked to Vickie, and another thing that I've done with topic which we didn't too much with S-1, is where they fill in the chart. They still would tend to try to write a number story using the givens or say that if they had a number problem instead of a story in an equation form they would try to rewirte the number story with the same equation form with the unknown in the middle of the sentence. (Inaudible) from the chart so what helped was to act out the unknown in the chart. And when they knew they had--because they tried from the chart to put the right numbers down so if they wrote the numbers story from the chart and that was easier. Then it made more sense to them. They had the crutch but they weren't using it the right way. They tried to skip steps, but they couldn't do it. One of the things in the book that I found a little difficult (inaudible) that there would be more space in the pages--like the number problems--they should be if they're taught the process of using w's and p's, then they should have room to do that. And if they're going to fill in the chart they should have room to do that and kids (inaudible). I know I've had times when children have to check everything all over the page. And they had to look for where they did their mathematical process just because they didn't have, there's no way that they can get this even with just a vertical or a horizontally, even if they chose one of the forms. Their writing is just . . . Also, when they came to comparison techniques, they were more ready to understand that the mathematical process was (inaudible) to try. It seemed like it was more to their understanding now, but (inaudible). They seemed to understand and my basic questions word problems was--what are you doing? Adding or subtracting or comparing? I use that difference because I think there is a difference in (inaudible) story then they know that they still write subtraction (inaudible) regular subtracting so that was, that really helped and they seemed to understant that. But it was important for them to know whether they were comparing or not. Sometimes even when you read it . . . I have some children who have reading problems so, even though they might at the time, like, I like the wording here so it's a lot easier for them to read 'cause that was a really hard thing. They just weren't able to handle the vocabulary, but now it's just after reading it, the comprehension, is (inaudible). The only thing I can do is look for key words like together. That'll always tell them, what's the difference or, lot's

of times they circle the key word. Sometimes they circle the word sum 'cause they know that's the unknown and then they can label it easier w or p.

So you really worked at taking the problem apart and figuring out what it was in the problem that gave them hints about how to solve the problem?

Right. I guess through my kids it had to be (inaudible) analytical. Then to see that, to learn the skill, word parblems apart. One of the things that was a little confusing for them was page 11. It is way . . . and there was a guest teacher in there and that was just too confusing for them. I remember I tried this once last year and it's still in this one and I guess for them to refer to the two letters then to guess the difference then to go back into, way to get them in the right sequence, was too much back and forth and a lot of times when they get the . . . so, this year I just crossed that whole count. 'Cause I really didn't see that that was; I know the importance of estimation, but I didn't see it's importance in this topic, and I just felt that the more important thing was for them to see that they had two objects, they were going to weigh them, they were going to find the difference, and do the process. I took out the guesses. It was too confusing for them and I really didn't see that that was the essential. "You should feel really free to adopt these in any way that you think improves your teaching." The graphs were good for the most part. We did them together, maybe it was because I was reading and coming back to the chart. I know that other children (inaudible). We did, usually we do all the stories together ot talk about these (inaudible). Or even just labeled, for instance (inaudible) page 17. How much taller (inaudible). We went through and it helped that the names were underlined, then we went through and found the number for Allen, labeled it right above his name, found the number for Tim and labeled it above his name so that they had the numbers and so that was there. We did that together and then lots of times after (inaudible) back themselves and decided whether they were comparing or, and then they were able to do that, it was a lot easier. I liked to do the labeling of the answers but I didn't find that was always consistent and it was the first time it was introduced and nothing was really said in the manual, but I think it's an important thing for them to get onto. But then I think from now on that's going to become a part and it should be consistent or . . . "Not do it sometimes and other times not?" One thing I found it very difficult topic to teach, extremely difficult for my children to understand, is easing the number 10. Not so much with the teams 'cause that was find, but when you start teaching the value importance of the number 9. "So that's from page 21-27." I just did it with, and if they didn't get it I didn't push it because they can't make that, that's a reverse process in thinking. "They didn't hook up with that 9 is one less than 10, but they did alright with the 10?" They did alright with the 10 because we did a lot with that too. Then to see, and some kids do (inaudible), but for the most part they caught onto 10 and when I was sure that they caught onto 10 I tried this again. I tried it last year and these kids, I just think that this is for children who are a little bit more capable (inaudible) more of a challenge, and if they can see it's a real help, but I can't see teaching it . . . "When they're not maybe ready for that process?" . . . so I really made very light of it because I know that they just had a hard time of it, they couldn't understand. They see the process, most of these on page 27 subtraction processes, but they really essentially--first of all subtracting 10 and then adding 1 more on or taking 1--it was a reverse process from the problem set and it was just too confusing for them. The value of 9 being 1 less than or 10 being one more than 9 . . . "They had to add 1 more to get the

correct answer and so on.". . . that was just too difficult. "Did you find any kids ready to do it?" For the most part, no. I'd say it's more of a challenging thing for kids who can stand the challenge. My kids are not really that challenging. I think for a challenging activity it's very good. And the kids who can get it, it's a real help. But for my kids it was more confusing than help. "So that's why you didn't go into that too deeply?" (Inaudible) the double numbers. The doubles are fine, but then when it was like 1 off from the doubles, it's the same reason. "So any of the number theory part you found very difficult?" The games were fun. They especially liked the Great Guessing Machine. They seemed to understand that 'cause a lot of that was comparison and they had to figure out what to do and they really liked that. I found out that (inaudible). "So you used that several times?" I introduced it and we did a few (inaudible) it was nice to have too; also, I'm a stickler for, especially for these kids, they're not always after (inaudible), and I've got a number of children who are extremely (inaudible) that every night I collect their books and (inaudible) I always mark down and it helps me to keep track of how they're doing on the cover--on the errors they had or if they needed help, if they needed to see me, and I had them go back and correct their errors and I'm a really stickler for it especially in this topic because I found at that even after they (inaudible) so they were (inaudible) careless. So I didn't even let them to on until they had every page starred. "So are they using validation then--do you think that, oh, they really were." Sometimes they weren't and they said they were. "That's what I was wondering." Which is why I was getting to be a stickler for it, because they weren't trying, they weren't even being exact (inaudible). And so they learned really fast that they couldn't go on. They weren't going to get started unless they corrected their answers. 'Cause I don't see any, is to correct something they see an error and they should look to see where the mistake was and if they weren't seeing that, well then it wasn't (inaudible). "So you made sure then that they had corrected those errors before they moved on. Were there any other changes in the activities that you can think of? Or, for the most part you did teach them as they were presented?" Pretty much the way they were presented. "Did you use C or D?" I might have used both because I don't really stick to many topics with these kids 'cause they needed as much reinforcement as they could get. "Did you add any activities?" No, not for this topic. Practice the basic facts.

Topic S-6 Teacher J School Y January 31, 1980

2. Which activities in the topic did you feel the most useful?

I think they are all equally useful. I think it's a very good idea that you didn't push the C-2 with the supplementary type things. Last year we went all through those too. We did not do that this year. Although we could use those as we go along. I think all the activities were kind of euqal.

3. Were there any activities you considered unclear?

No.

4. Were there any activities in there that you figured were extra?

No. I think, as I just said, taking those other ones out was good.

5. Did you find any of the activities complex to teach?

No. Well, the only one they had problems with, although I think it's important, was in the last section where you have to add before you subtract to find the difference. That was a little hard for them to comprehend.

5A. Did you find any very simple?

Well, it depends on what you mean by simple. I think most of them were fairly clear.

6. Were there any activities your pupils found particularly easy?

Yes, where it's strictly addition all the way through. Once they pick up the idea, okay, we're going to add on all the way through here.

6A. Were there any activities they found really difficult?

No. Only this last section and once they picked up the idea (inaudible).

7. Do you think there was any material your pupils should have covered before this?

No.

8. Did you use all the activities?

Yes. Not all the supplementary activities because of time. We will use them as the year goes on.

9. Did you change any of the activities?

No.

10. Did you add any of your own?

No.

11. Is there anything else?

The only thing I liked again to bring up somewhere in this writing, we gotta get placement. The 1's, 10's, and 100's. I guess I would put that a little earlier. Talking about addition, I have done a little of that (inaudible) . . . they were throwing the numbers in anywhere and the answers anywhere.

Topic S-6 Teacher G School Y January 31, 1980

2. Which activities in the topic did you think most useful?

I think the most useful ones were pages 21-28. They were an excellent way for the children to get more practice on addition and subtraction which is still what they need. That's their main real need. I felt that the story problems were good, but I think one big thing that should be changed is that the names of people like Herbert, Albert, and Mortimer should not be used. They should be short words like Tad or Tod or something the children can pronounce from the sounds they have already used in the reading, but when they see Albert right at the very beginning of that sentence, oh, my gosh, this can't be for me. And so it isn't the math so much that throws them off, it's the first word in the sentence. At this point, it isn't the math so much anymore but early in the year when they had both hard names and hard words, then the hard math, it was terrible.

3. Were there any activities you considered unclear?

It was a little difficult on page 10-13 for the children to remember that they didn't have to do the starred ones. And if they did the starred ones they didn't get them right anyway and it was only confusing, so I think that was very unclear and any most difficult ones should be at the very bottom where you can say, okay, with the line on top of them saying, okay if you want to do these you can try them. Pgaes 29-41 are not all that clear. They are rather confusing for children. They might--the average to the top might be able to them, but for anything maybe average to bottom it's more a matter of explaining how to do this particular way of doing things rather than helping them with addition and subtraction facts.

3. Were there any activities in there you considered extra?

I think they can use all the practice all the help they can get, but I think pages 29-41 were extra in the sense that they're too confusing for most children to be able to use. So they were sort of used less rather than extra.

4. Were there any activities you found complex to teach?

Yes, S-6 I is very difficult for a lot of the children. They think they understand it and they don't. I have asked them to hold up fourth of an eight rod and they'll hold up halves. Even after we've done it eight times or so with different kinds of numbers, they still don't have the concept of halves and fourth. For one thing the language is hard. There should be a page or two right after this developing the language if we want them to understand halves, thirds, and fourths. We should have two parts of something, three parts of something, and explain that three parts is also called thirds and two parts is also called halves, because they are asked to respond to halves, thirds, fourths. And it is a very new, not only a new word, but a new concept and if they could at least get the language down, then the concept would be the other thing we would have to deal with, which is still very difficult for second graders I find. At least many of the children in my room, if you have to spend all of your time working with all of them and if they go on their own, the minute they go on their own and

making a mistake it's obviously too hard at that level. I think it is better--fractions are really better in the third grade and spend the really precious time on addition and subtraction.

5A. Were there any activities you found simple to teach?

Pages 21 through 28 were pages they could work on their own and they were self-explanatory in most cases. A little difficult on the bottom of page 26 to make some more--they needed some explanation there. Yes, and pages 19; 19, and 20 were very difficult to teach. Page 18, they understood adding three or four numbers because they had those on pages 16 and 17, but adding the words really didn't make any sense for them and I think that could be deleted. It shouldn't be in as something that we ordinarily would do and then especially when they got to the very bottom even after I explained it five times at least, they didn't understand how to put those words in vertical order, many of them didn't. There were a few who got it but they didn't put them in the right place and maybe started in the middle of the page and they didn't have enough room. It's something that detracts from their learning of math--just how do you do it rather than the understanding of a math concept. We're teaching them a procedure here to follow directions and those directions are very difficult to follow, I think, at least for them they were. Page 19 had to be done one by one with all the children. It would be very difficult for them--for my group to have done that by themselves and come out with something that was right. Page 20, we didn't do because it was, I felt, just too confusing and rather difficult and the way the format of the pages vary is difficult. That should be redone somehow so that if they have to do something that difficult it should be maybe half that much on a page to start out with so they can get the idea of it first, and then they can do it.

7. Do you think there is any material your pupils should have covered before this topic?

(Inaudible) Definitely--there was a constant problem and it was really a sore spot with the double digit numbers when they would add and subtract double digit numbers. They didn't have any concept of the 10 space and the one space so that if they're going to subtract 1 from 21 they would just as soon put the one under the 2 as under the one and they did in fact do a lot of that sort of subtracting with the coins units where they had to subtract 15 from 16. Well, I tried to explain to them that the 5 goes under the 6 and the one and if not a one that the 10 goes under, but it's not a 10 it's a 15 so if they could, that concept it's almost impossible to explain it without doing quite a lot of build-up with having the children put hands on groups of 10's and then having a 10 and a 1 and showing them where the one space is, where the 10 space is. We had an old system that they had an excellent way of doing that with the tally charts. It was just a vertical line and a horizontal line and they had the 10 space on the left side and the one space on the right and the children could see very easily then which were the 10's part of the number was and what the 1's part of the number is and they did that before they every got to double digit numbers and they could do something with them, so I feel that would be a real addition. In fact, 33 goes into that and I'm sorry that 33 didn't precede S-6 rather than follow it.

8. Did you use all the activities?

"You mentioned you didn't use page 20?" I explained how to do it, but if some of the brighter ones wanted to do it, but there really much; they weren't really interested in that page very much 'cause of the difficulty and there is no place for them to do their writing, it's all cramped together. "Were there any other parts of activities or whole activities which you left out?" Not of the ones we were asked to do. We were asked to do A, B, C, D, and I. We did all of that and then the children worked at their own pace from pages 21 through 28. Then from 29 are confusing many of them to 36, I didn't ask them to do those, but there is 37 and 38 that maybe some of the faster ones will get to. They'll need some explaining again too before they can do those.

9. Did you change any of the activities?

I didn't change any of the activities as such. I did a lot of explaining at the beginning for some of the activities. Oh yes, pages 10 through 13 I tried to make the numbers that they have to add as small as possible. The pages really cramped up and if they're going to put a vertical line like 12 plus 13 there's, it's very difficult for them to be able to add them together without, if they have to do a horizontal line--in which you have all these horizontal lines, here 12 + 13--then that's very difficult for them to have to add those together if they can't write them vertically at all and there isn't room on this page to do it; so, not only from that standpoing but from the standpoint of just practice of addition rather than seeing how big a number they can add together, it's good to have these low like 10 and below these numbers here--like these get up to 8 and 8 is 16 well that's alright, but some of these got up really like here 9 and 8, it's alright, but something below 10 or even lower because of all of the amount of addition here. There's some good practice I think that's one thing it does.

10. Did you add any activities?

I did add before the topic inventory--they did two pages of just regular problems, story problems where they had a chart and then they did the vertical, horizontal problem and solved it. They were easier numbers. Nothing above 10, I think, they may have gone into the 12. One was 14, but so much of this constant building and if we throw in numbers that are too hard and hard concepts at the same time, then we confuse one with the other and are not really--our purpose should be really clear cut. Is this to add hard numbers or is this to learn a new concept?

11. Is there anything else you would like to say?

Pages 21 through 28 were really good, really great. Generally I think learning the concept approach is really good, and I think we need to sharpen up the addition somehow--work that in here too so the children come out capable of adding and subtracting by the time we are done.

Topic S-6 Teacher K School Z February 4, 1980

1. How important do you feel this topic is?

I think it's very important as a conclusion to addition and subtraction. I am concerned whether or not they have mastery; however, I feel they have the concept. I think it was good.

2. Which activities in the topic did you feel were most useful?

The activities that I found useful were, they enjoyed part 2 S-6 A. The deep space patrol, it seemed they enjoyed it even though myself reading the problems and they responded. That held their interest. Another part that went well was part 2 of S-6 B. What we did was we divided it in several ways. We used cubes, geometric pieces, and the washers and we had different groups working with various things and then they would switch as they finished and that went very well in terms of weight and length and space (area). We skipped part 3--it wasn't suggested that we do it, but I skipped it. The graph paper and the children working and with that was difficult last year so I chose this year to skip it. I have not followed any of the additional suggestions yet. In activity S-6 C, I found this valuable last year and this year, when we use the sentences in part 1 with the mystery box in different positions and the children had to make up stories to go with their sentence. They enjoyed that very much and I felt they did very well. First we divided into small groups and they worked in pairs and they made up a story for each other and then I found it to be really helpful, I had enough pieces of paper to go around to everybody and they each made up their story and we sat in a big circle and they shared it and they held up their story and shared it--it seemed to work very well and then some would interject, well you could do it this way too, which was very good. S-6 D, which we just completed, we did part 2. The only difficulty we had with that . . . "Why don't we wait on that."

3. Were there any activities you considered unclear?

No, not especially unclear, maybe difficult.

4. Were there any activities you considered extra?

That part 3 with the graph paper. S-6 B. I didn't find that to be advantageous. I think an additional suggestion that I did not follow was S-6 B where it says additional suggestions, I didn't even do it. It was measurement and recording the . . . I think it's good, but we didn't even attempt to do it with the number of kids and not having help. I would feel better doing it with somebody in there.

5. Did you find any activities complex to teach?

None were complex to teach. I would say materials, lack of materials or not having enough, they were fun things but they were, because I didn't have enough of them. Like part 2 of S-6 D--I realize we prepared the master and we did that, but in those cards, 35 FA and 35 FB, there's only one set of cards and I did have the other children doing other things. But it took an awful long time, in fact everybody didn't even get to this. I just decided to scratch it. I also did not do part 4.

5A. Were there activities you found very simple to teach?

The add 'em ups here were not difficult and they really liked it. I didn't find it hard to present any of this stuff.

6. The activities your pupils found very easy were?

Part 3 of S-6 D when it was like a shuffle board kind of thing. We did that, they enjoyed that. That was really easy for them. And the add 'em ups--I thought that was going to be hard, but it wasn't. The rest were really not hard. Give an explanation, they moved right into it.

6A. Were there any particular activities that they found difficult?

I didn't even attempt to do part 4 of the checkboard. I think they would have found that--the graph was difficult . . .

7. Do you think there was material your pupils should have covered before this topic?

No, unless the expectation is to have them have a mastery of basic facts in terms of memorization. I think we need more activities on that, no written, just suggestions.

8. Did you use all the activities then up to where you got to?

Just about, except part 4 of S-6 D and 3 of B.

9. Did you change any of the activities?

I don't believe so. When they made up stories I had them get into a large group. I tried it the way they suggested and then I tried it another way.

10. Did you add any activities?

Given that some of the children finished before other children I did give them review on basic facts, but the activities included like flashing cards for one another in pairs and then doing extra worksheets with the facts up through 20 addition and subtraction.

Topic S-6 Teacher T School Y

I felt there was a good balance for the group I work with, at least between the manipulative pages activities and the more symbolic ones. They used fingers and counters (inaudible). They're manipulating all the time, but the ones where they put the pieces, the geometric pieces, on the puzzle--count that and write it down. We're actually manipulating geometric pieces; or I think there were enough of those so that when we did things that were symbolic, like the length, that was actually manipulating too (inaudible). Obviously they couldn't see 8 liters in containers. They were prepared to deal with that and I was a little worried that that was a little too abstract for them. They seem to be at the stage where they have had enough of the concrete experiences. The math, I kind of hurried through the money one. The kids who understand the concept of money caught on real well. There were a couple that were kind of shaky, but I didn't stop to make sure that they all--if I asked any child on any given--what a piece of money was worth, most of them had some sort of a sense not from my teaching. We did go through this is a dime, anybody who was stuck I'd say this is a dime--it means 10 cents or how much does this mean--another child would answer and so I made sure that they got the problems right. I'm not really sure from these that they have any monetary concepts. I don't know if that was a goal on these two pages. "Oh, think it's just to give them some experience." I didn't find any part particularly hard to teach. When I have problems it's with attention. I think if the page is particularly not interesting to a child the difficulty doesn't really seem to matter cause if they're paying attention they do well in it. My big problem is the attention span in a class for a lot of the kids. I found the overhead projector works really well. I did make transparencies of some of the pages that I thought might give them problems so they could look at--page 11, I made a transparency of that and actually put the pieces on (inaudible). "So you turned that into a little more concrete activity than it was." So they could actually watch me put them on as well as on their own. I think I did the same, page 12. But that seems to help and then I left the overhead projector in the classroom and we did things like on page 19--we read the story and I put, they had the counters as well, some of the kids think there is something wrong with using cubes and for these problems you almost had to have cubes. You know, you run out of fingers. "Again on page 19." They're not just having 19 minus 18--it's 19 minus 3 plus 8 plus 7--so they have to, if there's complicated action there, and required them to use the cubes in that case and I said, and they could watch move, start with 19 on one side of the projector and then say, okay, 3 went home and I'd move 3 over and do the same and then I could also write on the projector and then they could (inaudible) and it seemed to work better with the class and that keeps the attention for most of the time. "Keeping them attending is really the big problem?" Yes. I didn't see that the concepts were that really hard. I was a little leary about page 18 because of the printing skills. And in many cases I wrote the letters vertically for them and they filled in the numbers. "So it was sort of fun, but the page could have been set up a little easier to use?" It might, yes, for my kids, I have some kids who use the whole space for 3 and they're supposed to get several numbers in. It was this particular child, I started her out vertically and she finished horizontally--trying to do it that way. Some kids with good printing skills and fine motor coordination could do it. They understood, I was really surprised that they understood, actually, the secret code. I was only going to require that they do the

ones that were already written in the book, but they wanted to go on. Initially I had written my plan book to skip these. I didn't get to page 20, that's the only one I skipped. "Did you supplement some?" No, I don't think I did. I did every page--I skipped 20--they did 21-23 independent. I think I'll probably give them some time to finish that and do some of these optional ones--25 and 26 and 27, 28. "That can be done anytime during the rest of the year?" Then I plan to do it.

Topic S-6 Teacher U School Z February 13, 1980

1. How important did you feel this topic is?

Very important. For the reinforacement that you had in S-5, and I found that they found much more success when they returned to it this time and I think that's extremely important.

2. Which activities in the topic did you feel the most useful?

More the word stories and the introduction to the fractions--they did a little bit. The measuring and the comparing were very good, they could see that. A lot of the stuff with my kids we did together--decided the process and back into the solving and for some of them I think that was important. Money, they really haven't had that much exposure to money so that was good.

3. Were there any activities you considered particularly unclear?

Not too much, I think the one that was most difficult for them, page 11 in their books. Mainly because it's manipulative with many small pieces and we found out that they had to use as many pieces like instead of just using one to trace, they needed to fill in the whole thing. Because, for the trace the size is so exact that, which is good and important, I found out that in my manual to say that was important otherwise they get really mixed up. I think one that was unclear but was good for them to have once they caught onto it was good, was the adding up in order to subtract. Once they kind of got onto that and then there was a lot of exercises to reinforce that so they seemed to kind of catch on.

4. Were there any activities you thought were extra?

No, because the children I have they're not the most advanced and so even the extra pages were extremely important for my kids for reinforcement.

5. Were there any activities you found complex to teach?

Page 11 wasn't so complex to teach as it was to be sure that I had noted for myself ahead of time to explain to them that they needed to fill in each of the sections with all the pieces. No, because most of it is given as review.

5A. Were there any activities you found real easy to teach?

I love teaching family effects and they caught onto that real well. I was very pleased. And that was kind of new to them.

6. Which activities did your pupils find particularly easy?

Family effects. And we're getting really good at circling the numbers in the stories, this is to organize their own thoughts, still labeling p's and w's and still filling in a chart and I guess I think my kids still need that discipline. They made it for the organization part of it, when they did that they found it very easy then to write number stories with a great deal of success.

6A. Were there any activities that were real difficult?

The adding in order to subtract was a difficult concept for them. Most of these pages of measuring and combining, and there were a few here--for instance on page 13--was difficult. Find the difference between p and q and r and t. Now that was just out of their realm of understanding what to do. I had them circle p and q to show that that was one that was combined to be one number and r and t because that was just entirely confusing for them. They were trying to add all those numbers together and they forgot they were to find the difference and it just didn't make sense to them at all. Anyone of those where they had combined numbers and then to compare.

7. Do you think there was any material your pupils should have had before this topic?

I think they had most of all the stuff that they needed ahead of time.

8. Did you all the activities?

Yes. All up to D and Family Effects.

9. Did you change any of the activities?

Not really.

10. Did you add any activities?

Basic fact drill. Worksheets. And they have been taking sheets home--two packets which are duplicates--and they have a letter that they took home to their parents at the beginning of this topic explaining that they were to do one at a time and then it was supposed to be written down, the degree of success and the time it took and then to compare again a second time towards the end of the week and then return it. I found it to be helpful because the parents just stood on our heads prior to this to have parents help with basic facts. With not much success. It just seems like flash cards, mmmmm, most of their trouble was with subtraction ones we found later, but this way parents are even writing little notes on the sheets that came back and it seemed to be really, they could really see where their children had a weakness or their degree of success, it was really kind of neat. One of the things that I found was difficult on a lot of these pages was that there wasn't enough space for kids to write numbers. Kids write big and there isn't enough room.

Topic A-1 Teacher C School Y March 19, 1980

1. How important did you feel this topic was?

Well, I think it was critical in order to go on with the double digit addition. There was no way of skipping it without complete confusion.

2. Which activities in the topic were most useful?

I feel that counting by 10s is alright. The counting backwards I think was rather useless. There was not a lot of value gained from that considering the amount of time they had to stew over figuring out how to get backwards. I think the most useful started on page 5, where they really got into the doing of the double digit addition. The problems were good and I liked the fact that they stayed with the addition for one or two pages and then the subtraction, just straight subtraction and then they mixed them up. That was excellent and the children really took to that really well. I think that the horizontal sentences were confusing and I thought that one page where they were asked to (there was somewhere where they were suppose to solve the horizontal sentences and it was really hard for them because they weren't put into vertical form at that point), they weren't used to putting it in their own vertical form. If they could start with the vertical forms and then switch to horizontal and vertical combined, it would help.

3. Are there any activities you considered unclear?

Yes, they were more at the beginning. Page 3, give me a hand, in the student workbook. The directions I felt were rather unclear and also if the child gives you a hand, it's only five fingers rather than 10 so I changed the game so that the child would see that he was adding his 10 to my 10 and it made it clear visually. We played a few of those games and that worked out pretty nicely. However, there are no boxes, no squares at the bottom, they have no concept of space when it's all blank like that and the sum, a few, 2, or 3, or 5, do a good job and the rest lose themselves on the page so it would be good to put boxes in so that they can follow where we are and keep their numbers straight. Spacing is still difficult for them and they get the plus sign from the previous problem mixed up with the next problem when there's nowhere to put it. The friends names sum or difference can be fun but it takes a lot of time to explain it and then for the children to understand what they are to do and it's a good exercise in sum and difference. It really is good in that it shows them the sum and then they use the same numbers to get the difference. Maybe some other way could be worked out that might be a little quicker on, it's probably okay, it's questionable. Other than that I though the topic--oh, page 8 was very difficult for many of them--to find the 10s number that came closer on both sides of these numbers did not seem to be real relevant to them to doing these addition and subtraction problems and it also was very difficult. I don't think that they drew a lot of connection there between the two. The Super Cindy stories and all were quite good, however, they're still having trouble

with knowing whether to add or subtract on some of those, a lot of those problems. If we could clear that up for them perhaps way back in the beginning of adding and subtracting by making really clear even more clear. Some of these questions have the word "altogether" in them and the children have found out by now that when you have the word "altogether" it usually means to add, so now when they see the word "altogether" it confuses them in a problem. (inaudible) The rest of the book is real good and this adding and subtracting is a page that really is nice because then when they're finished they can do the coloring which they like to; it's kind of relaxing for them and still it keeps them doing some problems and wanting to finish so they can do the coloring. They like that. The game we didn't do. I thought it, for the amount of time it would explain how to do it, I did other things instead. We had done about four other papers and sheets on double digit addition and subtraction.

4. Were there any activities you considered extra?

No. Fifteen didn't have to, but a couple of the faster children seemed to enjoy it. Number 8 didn't have to be in there and number 3, unless if we change it, it's kind of a good exercise so the children bring up both hands. Some of this going backwards was a little confusing and may not have had to be in there. The chart was good and actually the chart was critical for them so that they could see that they were skipping one for counting backwards by 2's or counting forwards by 2's. I think the 10s confused them more than anything going from 41 to 31 cause they're used to counting 10, 20, 30. They don't really have the concept, but they have the ability, the skill, and so when they go 31, 41, 51, that concept hasn't stuck with them because they didn't really understand, in a way they don't understand the 31 to 41 so this is a little hard for them. It was difficult at the beginning.

5. Did you find any activities complex to teach?

Just the ones I already mentioned, the counting backwards, the game on page 3 should be simplified, and the story problems are still very difficult. Page 8 was very hard.

6. Which ones were particularly simple for you to teach?

The compact, double digit addition and subtraction especially toward the end of the book. They seemed to be getting it fairly well, but they could use a little more practice there. They're sort of on the edge of having gotten it. I hope they are able to retain it in order to understand better the regrouping later on. If not, then a better job should have been done here, a more thorough job.

7. Is there material which your pupils should have covered before this topic which they didn't?

I think they really should have more firmly in hand the memorization of the single digit addition. The subtraction will come, but they don't really have the addition in hand and we felt, we've been told, that they should

learn both the addition and subtraction which they haven't been able to do. I feel if they had just been asked to learn the single digit addition facts at least a 10 for sure and then to 20, if they got those to 10 for sure they would be in much better shape for doing this double digit, but this is taking them way too long because they still don't have those facts memorized and I think what they need is much more drill work and practice work, but definite time allowed in the classroom. Not just saying, well, practice your flash cards at home is what you were saying now. Well, half of them don't practice them at home. So as a result they are way behind on what they could be way ahead of.

8. Did you use all the activities?

Yes. We used everything, except the fast children used page 15 which was optional.

9. Did you change any of the activities?

Page 3 I changed so that they would bring up both hands rather than one because it's a 10s exercise.

10. Did you add any?

We added extra worksheets probably about 6 extra worksheets. Just the counting by 10's, 2's, and 3's--kind of a learning process there. That's it.

11. Anything else you need to say?

I just think of all the topics, S-topics or the extra topics that we've done so far, this I think has been the best organized as far as teaching the children step-by-step the procedure that we want them to learn. It also has been better than the others in that it's given the children more practice so they are able to get something in mind before they move onto something unknown. Then they know what they know and they're not confusing what they know with what they don't know. Otherwise, if we don't give this good background, then it becomes also an unknown and then they've got two unknowns to cope with when they get the second unknown.

Topic A-1 Teacher J School Y March 19, 1980

1. You felt the topic was very important?

Right.

2. Which activities did you feel were most useful?

Most of them useful, they just fit (inaudible).

3. The activities that you mentioned were unclear?

At the beginning right at the introduction and page 5 and 6 in the teacher's manual. It just took a long time for me to figure out exactly what they were getting at. The other one on page 8 of the manual, I think that's pretty impractical. I used paper a little bit. I wouldn't try that one.

4. You said that you didn't think any activities were extra except the ones that they had listed?

Right.

5. You said you didn't find any activities complex to teach?

Right. All the activities were pretty simple. The pupils found all the activities pretty easy with the exception of the word problems. They're still having some problems in deciding whether they add or (inaudible).

6. Is there any material your pupils should have covered before this topic?

No.

7. Did you use all the activities?

Yes.

8. Did you change any of them?

No. I think they gave you a choice on this one about the hand one and I used paper.

9. Did you add any activities?

No.

Topic A-1 Teacher K School Z April 18, 1980

1. How important did you think the overall topic was?

I thought it was important and adding 2-digit numbers and getting prepared for regrouping later on is a good prerequisite for that.

2. Which activities did you think were the best?

The ones that were most useful were the ones involving counting by 2s and 10s and 5s and that kind of thing they seem to enjoy. They enjoyed counting upwards and backwards. When we used the overhead as suggested in part 2 of activity A-1 A, it seemed to be beneficial. Counting sticks were much better than anything else in terms of manipulative kinds of things. "Counting sticks better than cubes?" No, I like them both. Antoher good part was part 3 of Activity A-1 A when the children had to determine which 10 the number was closest to or which 10 it was between and I felt that game was good sense of 10s and 1s. I cna't remember which activity it was, but when we used the chart from the very beginning that was filled in and with the numbers from 0-99 or whatever it was when they would see a pattern that was very helpful. "Could most of them see patterns?" Well, I think half of them could. They liked the stories of Super Cindy in terms of getting interested and involved. "So the content of the stories does affect their interest?" Yes.

3. Did you think there were any activities that were unnecessary?

I don't think there were any that were unnecessary, but I think there were some that were difficult. "Which ones were they?" The things I find difficult at least working with the children are, I know they have to write the vertical, the chart, the sentence in the vertical form and that is very good practice for them. For some of the children, when you require all three they tend to get confused or they forget one of those parts anyhow. "Do you think the chart is still useful?" Yes. That way it helps them to see, they look at the chart and they know what they should do looking at the chart, the whole and the parts. I don't think they're ready. "Any other difficult parts?" No.

4. Were there any where you thought the directions were unclear?

Well, I guess on page 8 of the manual the bottom paragraph, that was a little difficult and maybe if I read it over again. Where the children were to write numbers on their left palm and things like that. I had them hold the squares of paper in that hand.

5. Any that you found complex?

No.

6. Which parts did the kids find real easy?

Without word problems and those that just were 2-digit addition, they just seemed to enjoy it. Once they figured out to add up the ones first and then the 10s, they seemed to like that. "I'm assuming that it was learned very

quickly." Yes, it was. I don't like to backtrack. The things that were hard for them is writing the grid. For them to keep writing 10s and ones. I let them write 10s and ones the first and then I had them put t at the top of one column--it's just sometimes it's a lot of pencil pushing. "Actually, the little physical things that we don't think about probably make it more difficult for them." Just more time consuming or they get bogged down with the activity. They enjoy the activity, but they get bogged own.

7. Did you think they had covered all the material that they needed to before this?

I think so.

8. Any activities you didn't use?

I did not use the bingo game at the end. I used one where they had a lot of fun. The game on page 34. I did not use that. We did do the other games. "Which they did enjoy." Oh yes, very much so. They had to use copies of their student booklets, fill them up with cubes and all, the dice, we never completed it though. Some did, some didn't.

9. Did you change any of the activities?

We pretty much stayed within . . .

10. Did you add any?

I just did in reviewing before I gave the topic inventory. I went through, I went and picked out stories and gave them a paper with a chart on it and everything and as I gave the story verbally instead of them reading it, then they had to fill in the chart and write the vertical form. It was a review. It was using everyithing from here, though.

Topic A-1 Teacher S School Y March 19, 1980

1. How important did you feel this topic was?

I thought it was good. It was very worthwhile.

2. Which activities in the topic were the most useful?

I think probably the goods, also the rounding off to the closest 10 and also for the children to estimate to see or is it possible--is this answer possible at all. (inaudible) do a real quick check on, which I thought was very good.

3. Which activities did you consider unclear?

The one I did not care for and I altered was "give me a hand." I would never tell my children to write on their hands, ever. They try to do that on their own and if the teacher instructed them that means in their free time they're just going to be drawing all over themselves. I would not recommend that. I adjusted it to having numbers on pieces of paper, different colored pieces of paper, and then I ask for a color and a number and they'd answer. Another one I thought was unclear, a little hard for the children, okay, there was some story problems that were not to put in the answer which we say and they did them very well. But then when I had to go back a couple of days later to fill in the answer then I found it was really hard because if they had trouble writing a problem, they had marks . . . they're ready for the corrections where they had trouble and then they go back and put an answer in. Sometimes what you do you makr wrong already and I think if it was objective was to just write the problem fine just leave it, if you want 'em to solve it give 'em a clear page where they don't have to go back to a page that already has check marks or whatever on it. I think it's also hard for the person checking too. Especially if they had a little trouble in the printing of it. . . . the box is too small, then they come back to try and put answers in.

4. Were there any activities you considered extras?

Most of them I liked and then one of them you said was optional. "Page 20." I liked 20 and I wanted them to do it where they have to look for the answers on top. Any kind chart like things like that I really like and the kids really like it too. Any of the ones I thought were extra--most of them--I didn't see any that I really objected to. I thought the game at the end was very good. I did take two whole days to work on it. The kids really liked it and I thought it was really fun. It was good practice for them. I considered page 23 a fun page, where they had to do the coloring with it and that they really liked. I especially liked that they put the bushes like purple and things otherwise it's too easy--oh, that's going to be green--they won't even add carefully. When they had a purple bush instead (inaudible).

5. Were there any activities you considered complex to teach?

No, I think the only one was probably "give me a hand."

5A. Which did you find very simple to teach?

How to make 2's and 4's. It was really nice because some of the kids could do it but the ones who couldn't they have that chart in front that was really nice and handy. A lot of kids used for a long time--it was good it was there for them to use when they wanted to. The grids were very easy to explain and very easy to use. The only thing that I didn't see here, unless I missed it, I think the children should be starting right now to add 1's first, then 10's. Prepare themselves for later on. I didn't find that mentioned anyplace in here. Like for the game at the end of the book where they had to roll the dice and it said first roll a ten. The second one I told them the first roll is the 10's because I always want to be attacking the ones and then attack the 10's. Later on (inaudible).

6. Which activities did your pupils find particularly easy?

I think they found the grids easy. They found it easy to count by 2's, 4's, or backwards, rounding the numbers they did quite well and easy.

6A. Which ones did they find particularly difficult?

Probably the story problems. The good story was "Super Cindy" they liked it.

7. Do you think there way any material your pupils should have covered before this?

No.

8. Did you use all the activities?

Yes.

9. Were there any other activities that you changed?

The game at the end, we played it two days. First of all, I found the game didn't last very long, but it was fun for the first day, but the second day I had them consider one game completing two sections there so their game sheet was really full. I just extended that, otherwise none other than the hand (inaudible).

10. Did you add any activities?

Just some time testing. The one activity where they had to solve things mentally, (inaudible) fun. I had a very good group. The hints that the book gave me to tell the kids--they wouldn't let me tell them. Because they were solving so many of them on their own. They found their own way, mainly they would see the problem in their heads and add the 1's first then the 10's and they did such a good job that they didn't bother to listen to my hints.

11. Is there anything else you need to say?

I like the activity with the sticks. Yes, they were very cumbersome in use but that was the activity, was shown that it was combersome, but it was nice that they had (inaudible) quite plainly all of the standardized test they show little bundles of 10's and we don't work with bundles of 10's; we have cubes, and links, and all sorts of things so it was nice that they actually had some little bundles of sticks that looked just like their tests. I thought that was nice--visually they can relate to it. I found just two typing errors, just wrong pages down until we figured it out.

Topic A-1 Teacher T School Y May 16, 1980

1. How important do you feel the topic was?

I think probably one of the most important ones for second grade. Important as a lead in to the next one.

2. Which activities in the topic did you feel the most useful?

I found them all to be necessary. I think there were very few pages that I skipped. One or two that I did half of; I have the bottom group so I felt they were at a difficult level for that group and I did supplement a little bit with the few kids on number sequence. Twenty-three comes between--and that seems to be a skill that somehow they either have automatically or it really takes some work to do. And seeing which number it was closer to. Especially a number like 28 or 29. A lot of kids automatically said it was closer to 20 and I think that's just because it's a 20 number. They didn't think of 30.

2A. How did you supplement?

We just did some work problems on the board. I imagine for an average group there was probably enough in the book.

2C. You used most of the activities?

Yes. I did skip one game activity toward the end because we were a little rushed. I think they got the concept even without some of the games.

4. Were there any activities you considered extra?

No. Not for my group. Some of the kids went real fast once they caught onto adding the ones and then adding the tens. Some of the kids relied on using the bundles of sticks a long time. Counting three 10s and two 10s and then putting it down. This is a kind of topic you could almost do an individualized thing. Kids could move at their own rate. I did have quite a split in my group for awhile with three or four kids that just were critical on how they finished on their own. The only thing that held the kids back was the reading. When they had just page of problem to do they did fine and they just really seemed to love to do more and more. You get to one story problem page and they just get bogged down. We would have to do those together. Which is frustrating for the kids who want to go ahead cause math ability is there and the reading ability isn't, so . . .

5. Were there any activities you found complex to teach?

No, I don't think so in this topic.

5A. Were there any activities you felt particularly simple to teach?

I don't know. The kids have a fairly good background and as far as the 10s and ones, and they seem to be ready for it at this point and it didn't really seem to be a struggle. The only thing that I felt we had to backtrack a

little bit and reteach was the parts with weighing and measuring where there would be a problem that says I weigh 42 and together we weigh 88. How much does the other one weigh? That three some of the kids. Or, what is the difference between our weights. Some kids added rather than subtracted and the aide and I had to work one to one with kids and really talk them through those problems. Even the kids who could read on their own quite often forgot when they're doing difference. I think doing a chart in each case would help kids. Which number was the whole. That's usually how I attack a problem when the child is having difficulty with it, is to say now what are these and what are these numbers representing? If it says we both weigh together 88, what does that mean? Okay, where would that number go in the chart? Even if they are not required to do that on that particular page. Where would that number go on the chart? When they see a chart they automatically know if it's too far it's a whole and a part and they know what to do with it them. I found very little difficult parts to teach, it was all pretty easy, I think.

6. Were there activities your students found particularly easy?

The straight problem were the easiest, they have a pretty good sense of the order of numbers so the first page where they just filled in the numbers from 0-99. Well, the number sequences I guess I have to backtrack. One was hard for some of the kids--counting by twos from 77--counting backwards by twos--or this happens to be by 10s, but some of the number sequences were a little difficult. Well, they're not tested on that at the end of this either. But anyplace where they had to fill in the chart or they had to go from the chart to writing a vertical sentence, they found it real easy.

6A. The ones that they found the most difficult were the word problems and the sequence?

Yes.

6B. Are there any other ones?

I think the word problems just from the standpoint of reading them. I never gave the kids a page and said to do this page. A couple that could do it, maybe two out of the group could do it. In that instance, I would let them go ahead.

7. Do you think there was any material your students should have covered before this?

No, I think perhaps some of the kids really need some more work on the basic facts so they're not counting on fingers all the time, that's about it.

9. Did you change any of the activities?

No.

11. Anything else you would like to say?

I think for my group this topic came at a very opportune time. They were ready fo it. It fit in. That's one of the reasons I think it was easy to teach. It seemed to be laid out logically for me and for them. There didn't seem to be anything that they just had to memorize. They were just doing it because they add up these first and then we add up those second and that happens to be the answer. Working with the sticks, the bundles of 10, first of all really seemed to help because the answer they were getting counting was the answer they eventually got on the paper. After they realized the short cut where they didn't have to add, the bundles everytime that they could just add in the columns.

Topic A-1 Teacher U School Z

1. What did you think of this topic?

I felt it was important especially because the activities in this topic, I thought it important that I do them all. It really helped them to see 10th numbers in relationship to another. They started to learn to count better by 5s and 10s and 2s so they understood 2-digit group numbers in relationship to one another. Also, the introduction to subtraction and addition.

2. Any activities that stand out in your mind as being particularly good or you have suggestions on for making better?

The one that I question that was kind of difficult for my children, on page 8 of their study book. Doing writing the 10th digit number that was before and after a given 2-digit number. They could sort of do that and they came to using that to estimate answers. (I watched some very slow children do that today so I know that that can be a problem.) I was pleased with how, after working with 10 digits and being able to count that way by 10s, that when we came to add and subtract 2-digit numbers how they could actually do that exercise in their head. For instance, they were to add like 23 + 41 and so they added first of all four 10s, they were really exicted that they could do it. They needed a lot of direction to follow the steps because again for them to think abstractly and to follow all the steps in the consecutive patterns that they needed to were in proper sequence. They needed my direction. When I was able to direct them I was really pleased because that's the first abstract thinking process they really had to do and were able to do it. They couldn't if I hadn't directed them. Otherwise they did really well, I was really pleased, it helped them later when they started to actually subtract the digit numbers.

3. Did you feel that they were really ripe for this?

Yes.

4. Did you think they should have had it earlier?

No, I don't think so. They're really ready for it now. It even applied to story problems. I felt very successful in teaching this. I guess it really showed even in their tests.

5. Any activities that you really thought were good?

Super Cindy was good because it stimulated them. It was something new. I think they were kind of tired of some of the other stuff. That was a nice introduction to have for now. "Something that motivates them." Yes. Using the chart was very valuable in number stories. I feel and I still have to label the p's and w's and I guess they need that extra step in there. The chart helps them to think the process. They need that crutch a lot. I would say about half of them now can skip the chart crutch.

6. Was 23 any more motivational?

It was too crowded though. Page 19 is a perfect example of too much crowding. Like even 17 and 18, when it's just problems, they don't write that small. I had to almost force them to write small. The one on page 15 where they cross out the wrong answer, I still have trouble with that. I'm not sure I like them saying incorrect answers. I let them play teacher when they do it and use a red marker to mark it wrong, but I'm not sure that's good positive reinforcement for teaching basic facts. I'd rather have them figure out the answer. Like 14, another perfect example--eight word problems on the page--there's no room for them to write their number stories. "If you use this again next year, you would prefer that we did redo enough that that could happen."

7. Anything else?

Even the first page is kinda like (inaudible). I was very pleased with the whole shebang. Some of the things in the manual--sometimes I spent I don't know how many hours--one night I spent a half hour trying to figure out the directions. If that were proofread it would certainly save the teacher time.

Topic A-2 Teacher C School Y

1. How important did you think this topic was?

I thought it was crucial if we are going to do double digit addition, especially when it comes to the carrying to 10 over and I think there were a lot of good exercises. Well, I thought that starting off this unit with a review of the previous unit, I think that idea is always good and they did that in this unit. They allowed the children to add a few pages of numbers that didn't have to be carried before they went into the carrying. And then I found another thing that was really excellent to show them that they really are doing something different than what they did in A-1, is that they have to circle those that they could have to carry on before they actually have to do the calculating. "So they could identify that and figure out a method for identifying?" Yes, they could identify those that were different than what they had done earlier. I didn't think it was good to go back through and solve the ones, the back pages, they were told they didn't have to solve them and in some cases there were marks on the paper and all that when they think they don't have to solve them. And then when you can go back it becomes very confusing and it confuses the process of what we're trying to get--the story connected--the simple process of the whole thing. I generally have not gone back when we have been instructed to do so because I saw that there would be confusion there. Not maybe in this particular instance, but I remember in one instance where they had already finished the calculations and then they were to go back and there was no room for them to write anymore of what they were supposed to do. "Once again, we have heard that several times that it is a problem of just the way we've organized the material on the page as much as the idea." Definitely. The format is so important. Generally it has been a problem of not enough space and I would say these exercises at the back where they have to add 11 and another 11 and all that it looks very simple and I thought this will be easy for them. First of all they were confused in adding such a long column. "It's after the money, I think, along in there." And secondly, there isn't any room once they print their answer under the two double digits, then there isn't any room if they're going to carry a 10, so the problem there is if they carry a 10 with one of the top ones they do fine, but now suppose they get something wrong, they get to the bottom, 6 wrong, and they're going over to do them again, well, if one of the numbers was only a single digit or even if it were a double digit and they have that 10 carried there, it looks like there's additional 10 when they're going to redo their work, because the bottom work, see what I mean? They have that 10 there because they've added, done this, and when they redo it to figure out what their mistake was then they not only have this 10 up here but this 10 down here that they're adding in because there isn't room here for them to put their 10 underneath the line to keep them separated. So that's really a problem here. The coins, putting this was a little confusing, putting 25¢ out in the column is a little hard for them especially where there's no lines in anything and they get their numbers pretty far afield and then many of them are doing their circles first and trying to get the 25 inside them and so any loose kind of things like that become a little bit of a problem. Otherwise the addition of this, I think these were a good idea and I think they could have used more practice on long columns of 10s

and 5s and 25s. "That's on page 24." They had a little difficulty with recopying the number here from the grids to the compact form. They didn't understand why they had to do it and many of them put their answer under the grid rather than under there. They still have a lot of difficulty following the example and doing what the example says. Some of them were just answering down the grids and not recopying into a compact form. Some of them had trouble copying in the compact form, there just wasn't room enough. Some of them write such large numbers that things got a little confused here so if there were boxes where they could put each one in so they could distinguish and realize how much space they had; total space they had for each problem it would help. They always need to have some relationships--many of them do at this age level. Page 3 was fine, they put in some subtractions, but they left the subtraction ones, they weren't ones that had to be carried so that was fine. Any of the practice items were really good at this point and leaving space above the 10s column to put the numbers they carried, the 10s they carry is really good. I'm glad that they did that in the book.

2. Any activities that just stand out in your mind as saying, gee that was a super activity, or the other side of the coin, that was really bad?

I think they were pretty even. I think the one on insects was a good one for them. It was simple and yet there was room enough and space--there's a defined space for them to print their numbers and it was very good. They did have some difficulty, pages 16 and 17. At times they would copy the number wrong and then, of course, their calculation would be wrong and when it was checked wrong they didn't realize why it was wrong. Because they had actually copied the number wrong so they had to go back and check that out. So, in some cases it was good and taught them to be more careful in copying, looking, you know, doing research more carefully. So that was pretty good. Page 18 was good, I think page 19 is really nice in each unit or topic to have a page like that where they can do their figuring and then they can do a color page. They like that and they look at it as kind of reward. They like to have a little bit of variety. So 19 was really super. Page 20 was really hard. Especially, they had to really write these 10s numbers and add them over on the right side, but that was very hard for them to see any relationship. It was very difficult for them to see that's a way of checking their answer. I would leave that for third graders. On page 21 they needed a lot of teacher help on that. Many of them could see if they were quick that 4 and 6 make 10 and 8 and 2 make 10. Many of them just added down the column like that too, but I really worked with them and helped them on each one of those. "That's a new skill?" Yes. It worked fine helping them and, in fact, that's the way to do it, but then finally they become about to see the relationships here. Doing the subtracting was fun--kind of enjoyed that--and page 22 was fun, good challenge. I did 2 with them and left 1 for them to do by themselves. There was a certain amount of explaining, but still I think page 22 was really good because it was something different enough and yet it was easy enough you didn't have to spend the whole period explaining how to do it. The coins were confusing in a way for them, circling the coins. I had to go through and help them a lot with that. I forgot just what was confusing. The bottom one, number 4 was difficult. Up here they had asked for the

total amount and here suddenly they are asking for only part. They had difficulty seeing the difference between or asking for just the amount that was in the two quarters. Page 24, for adding 10s and 5s really good, not so great for putting the 25s out there. They had some difficulties. Then on page 25, by the time they get their own numbers in there's no room to carry the 10 and if they go back and correct them they confuse the 10 that they carried from the problem below with the 10 they're presently carrying from this problem. Page 26 is about the same way, but most of them caught on and a lot of them had half wrong on each page because of the difficulty, the closeness of the numbers here, but then they did correct them and they did well after they corrected them mostly. Page 27 is really fun, and that's another one of those. They didn't understand even after I explained how to do the bottom part but then once they got to it they tried to figure it out themselves and couldn't get it, then I explained it again and they understood. They really liked, I think that's another one of those nice pages that are in there fore something a little different. The little puzzle page is really good. Page 28 is a bit of a challenge. It's really good for children who are a little quicker in the particular reading group. And, in fact, I think most of the children are able to do that page after some help. Many of them, I don't understand it, and even after we did all of A together, they still didn't understand, but I think it's really nice to have a page like that in there. It's simple enough, it's got defined spaces for them to put their numbers, it's got a bit of figuring, it's a challenge for the upper kids. So I really think those sorts of things are nice. It's only the confusing things that confuse them with their computations that we want to eliminate. but those really nice pages are really great.

3. Did you add anything?

I added worksheets. Double digit addition and a few of the color sheets instead of working with math problems that they could do when they had extra time. That gave them drill and practice.

4. Anything else?

I thought A-1 was just a little better put together--really superb in the way it was put together and carried out. I found that A-2 wasn't quite that well put together. "Can you specify?" No, I can't compare it now because I can't recall. I know at the time I thought it was superb, but working through this one I thought, no this isn't quite what the other one was.

Topic A-2 Teacher J School Y

1. What did you think of this topic?

I thought it was very good. The unique what that I've never seen before of introducing carrying, and I think it was done very well. The kids picked it up easily.

2. Did you feel most of your kids were ready?

Yes, and in fact I think they could have gone into subtraction a little bit. There were a couple of mistakes. The only thing that I had difficulty with is, I don't know quite the purpose of it, is counting by 10s rather than--maybe it's because I can't do it very well--is to find for instance when you're counting 75 + 60 or whatever and you count by 10s, 70 then 80 therefore the answer must be closest to 80. Estimating. I don't know quite what the value of that is. I haven't quite finished it. I'm up to here and will do this in the next couple of days (Bob's on page 23). This is very difficult--I think it's very important, but it's very hard--maybe you can put a little more of this in there. I think they can learn it (the money portion).

3. Do you plan to supplement?

I probably will, some of my own using, I wish we had a lot of money (play) so we could kind of use money. I think more should be done in this area. They have a hard time remembering this--how many pennies are in a nickly, in a dime--try to combine them. For instance, on this one they finally figured it out, combine three coins to make a quarter. Otherwise I thought it was really a good unit.

4. Any activity other than the estimating that you thought was particularly difficult?

No, except for the money part. Just more of the money part. "Anything else?" Just that the kids were ready for subtraction.

Topic A-2 Teacher S School Y

1. What did you think about this topic?

Generally, I thought the topic was quite good. A good variety of worksheets and I think some of the games are real good too. It's a fun way to practice regrouping of numbers. Again, I like it when the pages have challenge problems on it. I think that's always nice to have. I liked short cuts pointed out to kids trying to group into 10s if you can. "Did they catch onto that right off?" Many of them did. It was always nice to have a coloring page in there. I liked the link one with . . . measuring. The page with the coins I thought was very nice where they had. . . "23." . . . the coins shown very clearly on top. That's nice, some children, most, know the coins, but when you sit down and do a problem with it, they see a coin and then they blank as to which one it is, I'm very glad they had the coins on top of the page and they were labeled. that was very good. Talk about the money with grouping them actually physically have them group with a pencil. A lot of story problems quite often . . . How much money do you have here and how many coins do you need? By grouping it here it was very easy for them to see if they made a mistake or they didn't make a mistake. I thought it was very nice. One page that I had some questions about were on page 20, a little hard to teach it. I liked that page with the estimates, I thought that was very good. I think the way it's set up is a little bit hard. They had a rectangle or had some numbers in it, right next to the problem the kids--52 . . . plus the 50, 50 is closest to 60 and they would circle 60. And then on the side, the teachers show that they could 50 plus 30 equals 80 (this part is inaudible except for a few words here and there). I thought the first problem was a very poor choice to have on because right away that problem happens to exactly b a b and of course was exactly what was in the box rectangles, so the kids thought the other problems were estimates (inaudible). "Could they round off each of the numbers?" Some children have a little trouble but then after a while . . . that estimate is very worthwhile. One point, just kind of minor, they have some really interesting where they give oral problems to children. I know that the book just had several mistakes in it. If you read it directly from the book, page 28 and page 29 in the teacher's edition. "Usually I tried to go over those and find errors." Page 7 in the workbook first time they had story problems. Page 6, and look further on I think on page 12, then the next time they had story problems. On page 12 they were very simple. I think it would have been nice to have page 12 first. I think that when they point out problems like 36 plus 8 and pointed out that 8 is a one not a 10. Many children still have problems with that. They brought it up through the whole book of (inaudible). Again I think the kids found the sticks were very cumbersome. They didn't want to use them, which maybe is the point. Kids understand that it is a lot harder. I thought that the book overall was very good. I like the variety. there are still a lot of students who need review of their basic facts, 0-10, 0-20, but they're getting kind of tired of doing that. I think if they would have had the regrouping a little earlier they would have felt the incentive of, oh, yes, I really should have that knowledge cause I can see how it helps me here. If we would have had this a little earlier and then gone back to drill. They were ready. I found very few had trouble with regrouping.

Topic A-2 Teacher T School Y June 3, 1980

1. How far do you think you will get?

We have gotten about half way through and I think the kids except for the parts on estimating and the part with money, I don't think the topic inventory, and for the most part they should be able to do it. The only thing that might give them some trouble is that adding the single digit number; they might put the 6 and the 10s out on the top. But we have worked with that so if they are real careful they shouldn't have any problems, or just with the accuracy and the adding and that would be the only problem. I think they have the concept of the regrouping so I'm real pleased. It went really quickly from manipulative to the carrying. They caught on right away. I thought it was great grouping the sticks together. This is the first year I have taught it that way. The old program was more or less by rote. I don't think the second grade program included carrying.

2. So they got regrouping in third grade?

Yes. So I think they have a really good idea of why they are putting the one up on the top. A lot of kids said a lot was like putting a chip over there so that you need . . . I don't think that is just doing anything by rote. They understand when they have . . . the two that goes there or the two sticks that were left when we put the 10 over. It isn't just a put down the two and carry the one kind of thing.

3. So they know that is a ten?

Yes. When I do a problem at the board and we add it together I always say 8 tens plus 4 tens. I felt for this as far as we've gotten anyway, the amount and difficulty of the activity was just about right for this group. A couple of the kids got a little bogged down with recopying when they had to write the compact form. They didn't care if the dotted line when down between the 10s and ones or not. They didn't see there was much difference than just writing the numbers together. I think maybe they could have had a little more practice writing from the horizontal form for the verical form and the number sentences to the vertical form. On the achievement monitoring, of course we haven't done the whole book, but that may have been something you could have worked on a little bit more. They do have story problems that they are suppose to translate from and write in the vertical, but they don't have any just problems. "Horizontal number sentences?" I know the sum that they write first in the story problem and they write in . . . in the inventory they are given a horizontal sentence and they have to write it over vertically and then solve it.

4. Anything that was extremely difficult?

No. I was afraid it would be, but I didn't know if they would catch on changing from 10 sticks to a chip but that didn't seem to bother them. We counted 10, 20, 30, instead of 1, 2, 3, 4, they seem to like the format of the space patrol. They like to listen to the story. The bunch that I work with are highly distractable, but they like to listen to the story,

they can't read them, but they like to listen. Even the starred problems, well I don't know about this topic so much but the starred problems most of the kids wanted to attempt at least. I wish I would have had a chance to work with the end of the unit so I could tell you a little more.

5. What would be your recommendation for the teacher next year? Would you have them reteach this or just finish where you left off or just go on to A-3?

I don't think I would reteach the whole topic. I think I would review and see how much retention there was. Review the process of regrouping, it may take only a couple of days and then go on to A-3. A couple of the kids will have summer math so that will help. It would be nice if the whole group would have summer math. I referred about seven of my children. I think with a little review then go on to A-3. Probably some of the story problems and that's what I would recommend.

6. Any comments you would like to make about the year?

I don't know if there were, looking back on the sequences of topics, if I would spend more or less time on any of them. I should look through them and see and, hoping that the program the way it used to be, I could pretty much tell Okay, now I know I don't need to spend a lot of time on this--just a quick lesson on this is enough. Wereas, this maybe I did a lot more than I needed to. I don't know. It depends. I found that most of the activities I did were necessary. I had a couple of kids who were bored. It was coming so easy for them that they, oh, this again, they seem to need the manipulative activity. I just feel a little bit responsible for, I don't know how many other topics the other classes covered.

7. Did you think your kids were ready for this prior to when it came for the algorithmic approach?

No. I don't think so. It was timed pretty well as far as their readiness. It's unbelievable becuase when they get to a page of 2-digit addition, we walk into that classroom and they are all busy and working like everything and that's great and I guess it's because it's something that they understand and they can do and it's a little bit by rote . . . that was a big stumbling block, the story problems, because then I had to read and they had to stay together--where this, they could work at their own pace and not feel rushed or held back. So I think in that way this kind of an activity, just adding numbers, they all got into it and really liked it. Whereas I can remember if I were given a page of addition, 2-digit addition, uh, I would much rather do five story problems than 25 addition problems. I think next year will be a lot easier as far as from my standpoint after having taught--I don't know, will we have any direction? As far as which topics? "It will be totally your decision. I am sure if you wanted someone's reaction to what you had thought you would do, I'm sure they would be glad to give it. But as far as offering direction or feeling that we're involved in what you do in anyway." In other words, we could go back to the old topics? "Exactly. Which do you think you'll do?" I think definitely the new topics will remain because we have had, we have been concerned that kids coming to our district from other districts were quite advanced with 2- and 3-digit addition and subtraction

in second grade and some of the other programs that we've reviewed did not include it and we were thinking not only for kids coming in but when our kids transfer to other districts they would be lost, so I know definitely we want to keep these topics. I don't know if we'll go into all the sentence writing topics. I will have to go back through those and see which topics they replaced. I don't know if they're putting up in options as far as if kids have caught on, if they need to do all the S topics or not. "You can do whatever you want." I know, I don't know some of the geometry topics that I missed this year because we were working on the arithmetic so much maybe are not as important as we thought. I don't think they have lost all their math. Maybe just bring in some geometry things once a week or once a month. "You might not want to do all those sentence writing topics either. You could sit down together and say let's do all except page such and such cause it does seem to me like some of that gets a little boring." Looking at the inventory and I looked ahead these last couple of units to see whether (we were a little rushed), I didn't rush the kids, I did do half pages here and there whenever I could, but when I felt they were getting the concept we did a half a page and they thought that was neat. They like to do only half pages so I don't know which is more important to a group like the one I work with. The aides were a great deal of help. I am real happy the way it's all laid out, it just seems to fit developmentally as far as what the kids were in for at this age and perhaps some kids were ready for this in first grade. I don't know how the first grade is this year. Their figure skills have really increased through this. That was not stressed as much in the past year. Story problems they had to think, but these really, and they went from the single-digits to double-digits and I was real surprised that they could do that. I think that little chart with the whole and the parts helped a lot too. Translating that to the vertical forms seemed to come quite easily so then when they got to the three-digits, the big numbers did not throw them.

Topic A-3 Teacher N School X

PLANNING

1. Do you plan usually by yourself, or do you plan with other people?

I plan by myself, but the other third-year teacher is new this year so I'm, like her leader. I make sure that she's, um, understands the directions and is not too far behind me.

2. Do you plan usually day by day, activity by activity, or topic by topic?

With this topic I play day by day. Because I have to tell that lady exactly which parts we're doing, by day. So I do it day by day.

3. Do you use other resources besides the topic material?

No. (inaudible)

4. Are there pupils in the class that you plan specifically for? Do you have different plans?

Yes, because I have several children that would need extra help, well mostly you keep them next to you. I had one child in my classroom most of the quarter that was here from Iceland. And so I had to keep her, be explaining things again. If they're working alone, I try and get those kids at one table so I can be real handy to help with them. And, have to keep sticks and chips out for some of them, to actually figure it out with objects. Whereas, a great many of them do it in their heads already.

DIRECT INSTRUCTION

1. Do you group the kids?

They are grouped in two . . . groups. What we consider the better students, then the ones that need more help. Now I've got the top half of the third year. "Does your grouping change? Do you have . . .?" You mean between myself and who I might send to another teacher? "No, I mean in your class. Do you group the kids?" No. Not unless the specific activity wants a group. You know, 4 or 5. Then it's just at random. "Okay. So usually you don't group the class."

3. On what basis do you decide whether an activity should be seatwork or teacher directed?

Mostly on the directions. But if it looks like it's going to be too confusing for them, I do it with them. Or if it's something I really want to make sure, like there were several examples on the board before they try it. You know, work with them.

4. How do you decide how much time to devote to each topic or activity?

Just what it needs. Some of those topics, those units, are very long. You know, like in A-3. I think it's C that just goes on for ever and ever. You have to judge it day by day.

5. What type of evaluation of the students do you favor? Mastery, or just low level skills . . .?

Well, whenever I look at those inventories, I always, I think, aim for higher than what you guys consider mastery. If, like say there were 10 problems, I would really expect them to have it all, or maybe one wrong. You know, cause of mistakes. But I think your mastery is usually lower than what I consider mastery.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

Oh, I think it's one of the most important ones in third year! That re-grouping and understanding it and being able to do it easily.

2. Which activities in the topic do you feel most useful?

The beginning, when we're working with the chips and sticks, you know, where you have to actually have, trade this in, bring it over, that's very valuable for them. If I whipped through here I'd probably . . . part-part-whole is very important. And it's always hard to teach. You know, if they haven't had it in second grade, where you get new kids in third. See the idea is that they can read something and understand what's happening and how to solve it, rather than just a list of problems. That's one thing. This par art-whole business is very important.

3. Are there activities that you consider unclear?

Yes. Page 15, student booklet. What's in the pot? The set-up is rather poor on it, it's confusing for the children because see, they start here, come back, go over this way. Our children would do better if it were coming straight down. "So there, it's just not clear, which direction to go?" I think so. And also, my edition was different than the children's. The graph was hard for them but I think that's not in your set-up, that's just that it's difficult for them. The snake page was hard on page 19. But once they caught on to it, they liked it. It was fun for them. "It was hard just because it was too long, or . . .?" Just cause everything was so new to them. They, they weren't real sure what to do with it. Pattern pages were difficult, but I liked having them because there are some kids that just love that challenge. Having something hard. But I couldn't even imagine that all the kids could do that. We did them mostly together.

4. Do you feel that some activities are superfluous?

The first few pages, you guys just wanted us to circle the ones that needed regrouping. You see mine were just you know eager to solve, and so I actually went back and let them solve that as extra work. Cause otherwise, you know, they just seemed silly to them to just circle it.

5. Which activities did you find very complex to teach?

"You mentioned the part-part-whole." That's complex, yes. The intersection with only one page, page 25, in here? But that's difficult and that's something I have to do with them on the board. Cause now they're judging intersections. That, that's coming. But it's new to them. Anything with graphs were hard. I think it's a transfer of information, especially on, it's the page with the frogs. Let me see if I can find it quickly--page 16 and 17. If they could ever set that up, I finally was just ripping this page out for kids. So that this is, the graph is facing the questions. Because flipping back and forth and transferring information is real hard for a lot of children. "Did you find some activities to be very easy for you to teach? Very Simple?" The beginning part was especially good, it was very clear because they're working with objects. The page where they're doing the menu, remember the, or which page? Is easy because it is so intriguing to them. The high interest of that makes it fun.

6. Which activities did the students find easy?

"You mentioned which ones were difficult, but . . ." I think any of this first work in here, whether it's simply circling what needs regrouping, which is pretty easy for them. Page 4, there was no problem at all, they were just regrouping. Page 7 was easy for them, they were doing this bottom part down here. They were figuring out like riddles. That was easy for them too.

7. Is there material which your pupils should have covered before this topic?

Well, I was wondering, because suddenly they hit something, you know, they'd done all this teaching with subtracting, regrouping and subtracting, and then suddenly they threw in an addition problem. And it startled me and it startled them too. And then after they thought about it, they said, well, yeah, I guess we did have that last year. But, it didn't have any review, and here they'd spent so much time on the subtraction, and then just right in the middle of it was this adding . . . we had to regroup. "So you feel that it would be much better if you had reviewed . . .?" If they'd made it a little bit of that. It was just right in the middle of a page, if you didn't have anything separate apart, you know, look out for this one, or you need to regroup, and had . . . and so that was hard.

8. How did you choose which activities to use?

I did almost all of them. If there was something that was just odd to see, too repetitive for them because my kids are the better students, if I thought it would be too repetitive, too boring, I skipped it. But in this topic, you know, there were very few . . . activities that would be that simple. I probably stopped using chips and sticks sooner than the manual would indicate.

9. Did you add any activities?

We spent one or two days working on what we call consider basic facts because there were 8 to 10 of them coming back from over the summer, of course, that understood what we were taking about with the regrouping and all. But they'd forgotten so much fact work. So we threw in a few extra days of that.

11. Is there anything else you would like to add?

I liked the topic. I think it's one of the most important ones we have. And I liked the pattern work at the end. Like I say, it was nice for the kids who enjoy a challenge. But another page that I guess I found difficult was that often, maybe three times, my manual was different than what the children had. And that was hard, you know, cause you go, you know, you're racing along, you tell a child one answer isn't right, then it turns out it's a mistake and it is right. Like on this Moletown, page 8 and 9, you just have to do with them because they have to get these same answers or if they do it on their own, you know, they get a little bit different, they're still technically right, they've got a different answer and it just changes everything on page 9. You know, makes all their answers different from the other kids, and they're just sure that they're wrong and they get upset, you know! How they do it. So that's the type of page you just have to do together because, the measurements are so ridiculous.

Topic A-3 Teacher O School Z

PLANNING

1. Do you plan usually by yourself, or with other people?

I usually plan with Teacher N. That's kind of to keep things together. We're now apart, but . . .!

2. Do you plan day-by-day, or activity-by-activity, or . . .?

I try to plan it by the activity, but usually you have more plan than you need, so . . . it's mostly, you gotta go back and plan it day-by-day.

3. Do you use other resources besides the topic itself?

I, um, just kind of brushing up for review for myself. I use other things and, um, just to, well there's a lot of things that I may show the class, or, like, with something and it might not be in there. You know, so, that way there is other things. Mostly it's just kind of the information given in there with a little quick review.

4. Are there pupils in your class that you plan specifically for?

"Do you have students that you have to plan specifically different from the other kids?" No, I think I kind of, you do a lot of just general review in the beginning, kind of get them rolling back and then usually it's whole group planning.

DIRECT INSTRUCTION

1. Do you group the kids in the class itself?

No. They're usually together. We work together. "Are there times that you would group the, or they would change, um, from the whole group to small groups?" Usually for correcting purpose or question purpose, there are some that they'd finish faster than others and then do other activities. Other than that, no.

2. On what basis do you decide whether an activity should be seatwork versus teacher directed?

Kind of how the students are taking, whether they understand the concept or not. A lot of, most of this was done together with the group that I have. And a lot of it was probably my guessing too, since this is the first time I had this program. You know, so it was kinda feeling out. But most of the time it was teacher directed with help. A few they did on their own.

3. How do you decide how much time to devote to a topic or an activity?

Kind of the children's pace. How much you can, you know they will get finished. Say like an independent activity, you know. You plan maybe one, two pages depending on the time, their speed. There's other activity, you know. Then there's other things we do when they're, if somebody finished ahead of the other ones.

5. What type of evaluation of the students do you favor? Like mastery or low level?

Well, right now I don't think there can be definitely mastery of these things, there's, I think, just kind of a low level scene that they're, they're getting something. Can see the light somewhere. Somewhere in there. You know, it's very hard to see well direct mastery on this. You're going to, you know, direct drill all the time. To have mastery.

TOPIC INTERVIEW

1. Do you feel that the whole topic is important? How important do you feel it is?

Like, this, . . . "The whole topic, yeah." I think it's important that they should know the adding and the subtracting outside of just the basic fundamental drill which this basically covered, you know. That they know that they have to kind of add, subtract to find anything in life. "You mean the applications of the problem solving?" Yeah, the application is good. That they'd see it used more than just plain drill all the time.

2. Which activities in the topic do you feel most useful?

Mmm. I have, well I think the . . . in general? I don't know which ones were the most useful of all! I think probably where they, I hate to get back to the drill part, but I mean that's kind of, that there were some of the activities that they, I think confused them more than kinda helped them. "We'll talk about it in a minute. Which one, did you find any ones that you think more important than others, more useful than others?" Not offhand. Right now I can't see which is, you know.

3. Do you find that some of the activities were unclear?

I think so. That, um, when they started kind of switching back and forth to the adding and subtracting, um, some of the, like the charts and things, that's kind of confusing for the children. "Um-hm. Can you show me or tell me?" I think kind of with my group thy enjoy--they are the lower level--they enjoy all of these, um, the names and things. But I think at times those names kind of boggle them down cause they, you know, forget what they're talking about or, you, like thumpers or . . . it's kind of the different things. I mean, it's cute but like on this, the restaurant page, I said, just, we had to kinda go back to how much it was just the soup, or the mushroom soup instead of, because they would get so confused with what all the ingredients were in it that they forgot what they were

looking for. Things on that. And that one and, maybe, sometimes some of the, the way the question was asked, they weren't really, they couldn't figure out whether in the story problems per se, whether they were really adding or subtracting. Some of them were kind of confusing to them. "Okay, but that was because they were difficult or because they were unclear?" I would say more un . . . un . . . well, I don't know if it was. Some of them are a little unclear I would say, more than just difficult in their reading part. "Um-hm. Can you think of a, one in specific?" Well, a lot of them, okay, on this page they, this one really blew their mind, the one that they couldn't do. "On page 21 . . .?" Twenty-one, number 3. Where they can't tell the answer and just, when you had the word (I know it's very hard) all together, we got to the point where they understood that all together meant they had to add. And the word difference is taking them away. And, um, but then when they were, they had to put things together. Maybe just some of the, this one was confusing because it really doesn't--on page 22, number 2--where they had to . . . because it just gave them, it gave them two sizes, and they really couldn't tell whether they, you know, with the two sizes whether they had to add them together or take away when they were just talking. It was kind of unfair to them. But, I think that's probably . . . and, oh I know, on their graphs. They weren't really sure, okay, on these graphs. I don't know how they, they read it as . . . "Page 23?" Or just kinda like any of their graphs. Whether they should read the top number, whether this should really be 26, you know. I said where it ends up. They weren't really sure. "If it's 26, or 25?" Twenty-six, or 27 or 25. You know, it was kind of, I said well wherever it ended on the line. They were just, I mean just kind of a little confused to start.

4. Are there activities you consider superfluous?

"That you would leave out, that you wouldn't use them?" I don't really, I don't know. It got, I mean it was good that they . . . I don't really know. I guess they kinda need . . . maybe to get . . . I don't know, they need to know. I guess not really, not really offhand that I can think of right now that . . . I, some of these I know that my group at the very end will never, I will give those, just the challenge thing that they . . . and some of these other things, it's just to get the, I guess just to get the basic concept down and then some of the things like, um, I let--like page 7, which is answering on the top can then filling in--this was kind of an extra thing they did. Because it took, it takes some of the children more time to figure out other pages. Um, I don't know if there could be any way . . . because each group they have, uh, even like in the slow group there's fast ones and slow ones, but sometimes maybe if there weren't I know, well story problems I can see. Five or six on a page. But maybe some of these other pages, or maybe you could do that more on an individual basis, too, where you just have them do part of them. In a man a drain. Like where they have lots of problems. Like on any, well, kinda like any of these, well, I don't know. It depends on their time. But there's a lot, some pages have, there's a lot of information and it takes them a really long time to grasp what they're doing. "Like this one on page 10?" Yeah. I would say this whole, like this map of the molehill. Maybe it was just a little too long with the flipping and the looking, they kinda forgot what they were, the idea of doing the kind of, the basic addition and subtraction and things. It got kind of confusing for them.

5. Which activities did you find very complex to teach? And which did you find simple, for you?

Well one that was, that we're on right, where they have, um, a lot of thing to do. Like the part where they have to . . . it took a while to explain to them the difference, it was kinda like a review of . . . they get confused when the directions say what form to use. Like sentence form compact form, when they have a lot of different things to do. To explain, it took awhile to explain to geo through, and one day we just talked about the sentences, you know, a sentence, and then we talked, . . . "You're talking about page 24?" Twenty-four, where they have a lot of different things to do, to finally get them together. A lot of them just thought that because it said adding that they were adding. And open sentence, they thought they should have circled adding, because that's what they were doing in the open sentence. "So they didn't understand the directions?" Yes. They didn't understand which direction it tell, you know, it says adding, tell what you have to solve, but they didn't get that. And then when they had to put them in the box form so, right now, each day when they come in we do sinple addition or subtraction with regrouping, or . . . and then, I will put a sentence on the board and they have to label it. With the part-whole or whatever. And then some days I'll say, put them in the box for, in the whole-part-part box, so that they get the idea that there's lots of different ways of doing it but they get, I think maybe, a little confused on the terms and what they call them. "Is there any other activity that you find very complex to teach?" Not . . . I think it was just, it wasn't really complex, but it was just kind of the review of the subtraction, how they, because they had forgotten all about regrouping. Whether they, I don't know how much they had it in second grade. "You mean the addition or the subtraction?" Well the subtraction that they had to regroup, and then all of a sudden they threw in, one of the activities, they threw in some adding and it really kind of blew their . . . you know, that they forgot what they were doing. "Did you find activities that were very easy for you to teach?" Oh . . . basically nothing was really that, I mean for . . . just to go through. It's just that, I think it just took more, just some of this took more explaining than the other ones did. In that aspect that you had to really go kind of into deatil, but there weren't any, you know, that really had me confused or anything like that!

6. Which activities did the students find easy? Or difficult?

"Some of them you've already talked about." Yeah. I think really the easy things were for them when they had, I think, just the basic--as page 3, as page 4--that they could just, to go on their own. That was really easy because then they knew what . . . whereas things that had all subtraction on the page or something like there was no confusion for them. And the very basic story problems. They did page, we did page, I did number, let's see, what page is that? On page 22, the children could do those problems. I guess after going over the first page, 21, they would then, a lot of them wanted to go ahead and do it on their own. And, we did number 2, the one that was confusing, 2 then, together. And then they just went on their own for the rest but, with questions. They're always given time to ask questions, or need help. I will help them, you know, so, too, that kind of stuff.

7. Is there material which your pupils, which your students, should have covered before this topic, which they didn't?

You mentioned addition, that you felt they needed . . ." I think maybe now do they, they had regrouping in second grade? "They had a regrouping, sure." Maybe just a general addition or subtraction review before these start or something. I think that would . . . "We had some problems with the regrouping in second grade." Yeah. But a lot of them also have to work in the school so much on just knowing their basic facts. And that's what, I think that's what holds up students. Oh, they really enjoyed the validating page. If they could see their answers to be right. And we had to do our examples on the board wrong. So that they could see because I says, there is, you know, you have to know what's gonna happen when you come across something wrong, too, cause when you're checking how're you gonna know where you went wrong? So they enjoyed that, you know, kind of . . . another idea.

8. How did you choose which activities to use?

Depending on the speed of the class. We basically covered most of the things, and that's just up to, I just kind of figured whether they could, easy enough that they could do on their own, or we had to do them together. And most in this topic we did together. Now with all the reading and the graphing and things we worked together.

9. Did you change any of the activities?

Not really, no.

10. Did you add any activities?

No we didn't really add anything. It's just that maybe more examples or we did things, maybe had people work things out. We didn't really add anything or take anything out of it.

11. Is there anything that you would like to add, that you would like to say about the topic?

Not really. There are some things that . . . I lost my page 24 but I know you people gave me a copy of it. We're finished with it anyhow, so we don't need the answers now! I worked it out myself! No. I'm glad there's answers. Maybe, um, some of the things, I have notes here somehwere that, oh, maybe when they stuck to adding and subtracting and they got kinda confusing. Some of the answers I found to be the wrong answers, but that's in every book. Okay, first of all page 15 is set up kind of jumping a bit. After we kinda did it together and then they kinda caught on to the way it skipped around to get the things. The idea that they had to move on the page and also carry their answers along with them, which was a good introduction. They enjoyed that sneak page. But I think that was a good, there too, how they had to keep in mind how they came out with one answer, then they had to keep that answer in mind and either add or subtract to the next . . . "So you're saying that you enjoyed page 15?" It was, the

children enjoyed it, it was maybe the complication of the sale. That kind of, but they enjoyed doing it. I mean there's one thing, they liked the name. Now, on page 18, a lot of the children could solve that page, but when it came to coloring they, I think, have to be a little more, maybe it was my fault that I didn't explain a little bit more, kind of, give an example of greater than, less than. It kinda, where they had to figure that out it just, because a lot of them didn't understand the greater/less than principle. To be thrown in on that page. That was the kind of hangup on that page, but . . . because then on page 18 they had no problem. I mean it was just the right, and 19, I'm . . . that they had to just be reminded that they had to either add or subtract.

Topic A-3 Teacher P School W October 1980

PLANNING

1. Do you usually plan alone, or with other people?

Usually I plan by myself, but that different topics, because we each have a separate level. We decided at the beginning of the year usually, who would start what, in what topic. But then once that's decided then we kind of . . . unless we need help with something.

2. Do you usually plan day-by-day, activity-by-activity, or topic-by-topic?

What I do is I plan on Friday or Thursday for the following week. And then I might readjust my plans, as the day goes, you know, as the week progresses. But I usually plan ahead a week at a time.

3. Do you use resources other than the topic materials?

Um-hm, I do. Um, I have a lot of motivation sheets I do with the kids. It might pertain to a season or a holiday, that would correlate with what we're studying in here, but it would be extra things that I call fun sheets. For them to do.

4. Are there pupils for whom you plan specially in the class? Differently from the other kids?

You mean that there are certain kids in the math group that I have that I spend . . . "In your class, yeah. Um-hm." Yeah. I have a coupld kids that have problems with listening. And so I have to do other things with them afterwards. That, you know, we go through things that they should be doing.

DIRECT INSTRUCTION

1. In your math group, do you group the kids?

No. The only thing that I do is that sometimes they work at their own level where some kids work faster than the others so I might give them sometimes more work to do. Or different work to do. "Does your grouping change? Do you change . . .?" So far it hasn't. But I don't do that much, the majority of the kids are pretty much together. I haven't been really, grouped . . .

2. On what basis do you decide whether an activity should be seatwork or teacher directed?

Well I'm, way I do it is how the kids are acting when they come into the classroom. Sometimes if they, you can tell it's gonna be a really good day for them. And they're gonna work really independently by themselves. And some days they're really wound up and I know that they aren't going

to be able to do that. And then sometimes it just depends on the activity that they are doing. Sometimes, if it's something that's gonna really frustrate them, I know it's gonna frustrate them, we might do it together. Where something that I know that's gonna be more fun, or just reinforcing, they do by themselves.

4. How do you decide how much time to devote to a topic or an activity?

That's hard. And I'm not really good at it yet. It kinda depends on, well, how fast my kids are working and what day of the week it is. Like I know Monday, like whatever activity I'm doing on Mondays I know I'm not going to get as much done with them as I will on Tuesdays, or . . . It really makes a difference what day it is! "What's wrong with Mondays?" Mondays, I think it's because they've been so active on Saturday and Sunday, and Friday night, they're worn out. And so on Mondays, when they come a lot of my kids are really tired and they're just not totally with it. And on Tuesdays it seems with this class, it's really weird, it seems like it's a really good hard-working day for them. They really work! It's weird but this class does that!

5. What type of evaluation of students do you favor? List mastery, low level, . . .?

I do a lot of teacher observation with them and I guess mastery way a certain percentage of mastery of skill. Like I don't go for 100% mastery with the kids, but a certain level of mastery. And it depends on the activity I'm doing for the mastery, you know, the level that I want.

TOPIC INTERVIEW

1. How important do you feel the overall topic is?

I think it's really important. I like the change this year from last year. Last year they had regroup, you know, the carrying and the borrowed book in the same group. I like it that it's separated now this year. I think the kids handle it a lot better than what I saw last year.

2. Which activities in the topic do you feel most useful?

Most useful. You mean page-wise, or . . .? "Yeah. Oh, in general, what activities do you feel were most useful?" I thought it was very good where they had a story problem and then you read it, or the story, where I would read to them, and then we get problems relating to that story. I thought that was a really good activity. Because it could related to something. "You mean a central story with different questions on it?" Right. Like one I was thinking of was feather plump. The broom factory? Where we read a story and it was a really cute one. And then we did pages on it. So that they had something to go on besides just, well he had to do page 20, now we have to do page 21. If they could relate that. I liked that part. And I liked also where the more, instead of this type of a form where it's just . . . "On page 5?" Right. Instead of doing

something like that, you do something a little bit more exciting with it, like, well something like that. "On page 7." Right. It makes a difference. Also I like it where you can . . . relate it to somebody else. Or to your own self. Like with heights. You know, they could really relate to that and I like those kinds of activities that they can relate to.

3. Are there activities you consider unclear?

Unclear. I felt the whole thing with estimating was . . . maybe it was my interpretation of it, but I thought that that was unclear. It was unclear for me, and I thought it was unclear for the children. But it's maybe the way I handled it, too.

4. Are there activities that you consider superfluous?

"Activities that you think that you don't really need, that you . . .?" With the higher groups, I think the back activities are find. But with the group that I have, these are much too challenging for the kids, and more frustrating than they would be worth. So I'm not even doing them with the kids. They were the back ones.

5. Which activities do you find very complex to teach? And which do you find easy?

I felt that the ones where you start out, where you have to do the grids, we do them physically, and then we did them on the board. That was really complex and it was hard for some of the kids at first to comprehend. "You mean to get both of them, to get the physical objects and the . . .?" The grid, right. To transfer this they could do that find on the grid on their desks. "Move the physical objects." Right. But then when we had to put it on the grid on the board, it became more difficult for them to do. And, that was one thing I felt was difficult for them.

6. Which activities did the pupils find easy, or more difficult?

They found the validating pretty easy, and they found, most of them, there were some who had problems with that. I was surprised though, a lot of them found the part-whole pretty easy to do. And I was really surprised! Because last year kids had problems with that. But there were some that couldn't do it.

7. Is there material which your students should have covered before this topic which they didn't?

I think what I would have done, before I would've gone into this topic, was done a little bit more review with the addition of two-digit numbers. Because some of the kids had forgotten the carrying. And it, I'd have gone through it a day or two of review with them on that. Before getting into A-3. It woulda been wiser. But, I had thought that, I expected that they wouldn't remember that. Some of them had forgotten.

8. How did you choose which activities to use?

Well, I read through what the next was and decided which activities the class that I had could handle. And which ones I didn't feel that they could handle. And, with this class I also thought that motivation was really important. So, if it was something that was going to be very very boring to them--I felt would be boring to them--we kinda went over that, just didn't do it. "Like what?" Well, like just the examples were . . . you know, these kinds of pages. That's why, and I realize you hafta do some of those practice things, but they can be very very boring for kids, whereas, those other pages with . . . I don't know, that type of thing, or "Like 15?" Right. Or, those things were just great. "26?" The kids, right, 26 and 27. They were just great for the kids. They liked them. And you're doing the same thing, you're practicing the, you're solving those problems. But yet there's a little motivation behind it.

9. Did you change any of the activities?

That were in here? Yes. I did with the estimating. Because I didn't want to go into it as much as they had suggested with the kids and so I did change the activities for that. And I believe the one with the measuring of the height and things, I changed that one also a little bit. Because, just for the caliber of kids I have.

10. Did you add any activities?

Um, we had that time test and game day every Thursday. And I added activities working with their basic subtraction and addition facts. Because these kids still need a lot of work on that. So we do quite a bit of different activities other than this on that--to build up their skills.

11. Is there anything else that you woujd like to say that could help us?

Just that I like it better now that they have split the subtraction and the addition of the 2-digit numbers. I think that's very helpful. I question the reason for putting estimation in where they did. And maybe, like I said, maybe because I felt uncomfortable with it that's why, I totally misinterpreted it. But I question where they placed it. "Did you find it unsuitable to put it in with this unit at all? Or . . ." If it would be included into the unit, I would have preferred to have seen it at the end of the unit. And it might be because the kids that I had, that caused me to think that way, but . . . "You just found that it was too much to do . . .?" I found that we were working with so many different, you know, working with the grid and then we went to the compact form, and then we did the graphy, and there was so much there for them to handle. I don't know why. I think that there should have been something dropped for now.

Topic A-3 Teacher Q December 3, 1980

1. Just in general, how important do you think the whole topic was?

A-3 I think the basic concepts they're trying to achieve in A-3 are very important for this age level. And I'd hafta, regrouping is a . . . important concept and a good thing to have. So, I think it's pretty important.

2. Which activities in the topic do you feel most useful?

Uh, okay, now again I'm dealing with low skilled kids in my group. So any kind of page like . . . 2 and 3, where they're actually working with numbers I think are important. I think 2 and 3 are real good because, not being real concerned with the answers, they're just looking, they're, one you're getting them to look at the ones column already which is important, and I think that should be a big step, a very important for them to get and I thought those pages were excellent. "Without, you mean without solving them, just by looking them over?" Yeah, not worrying about the answer per se, yeah, just looking at the ones column so they have to make a decision, is this gonna be a regrouping problem or not? And then, you know, any page like 4 and 5 where they're actually working with problems, for these kinds of kids I think are important. I thought the beginning of the book until you got to page 8 and 9 for my group was good. Eight, see now with my group, 8 and 9--the pages with the mole town--that's just throwing a curve ball at them. Where, if you're gonna do something with that I think you should have a couple of days, I mean like a . . . 3 or 4 exercises with a map. So you got not just a hit and miss type thing. So that was, that's been my biggest complaint about the program. For low kids anyway, this hit and miss is bad for them because they're just betting comfortable with the regrouping and boom. All of a sudden they're confronted with now they hafta, you know, kind of decide a path that this mole's going. And they add those up, or subtract, or whatever the problem asked for, and, you know, if you're gonna do that I think you should stick with it awhile so, you know, you're achieving something instead of this hit and miss type thing. That's why I've said I think this DMP is excellent for a high-achieving kid because, well, they're more, you know, the different angles you take, you know, they're able to handle that, and they're able to say, hey, this is a, you know, this is another way I can use numbers for them. That's what they're saying. Where I think my low kids, now this is just something that is confusing to them. Where if it's just a one-day deal or a two-day deal. See what I'm? That's my, how I look at DMP. For a high-achiever I think it's an excellent program.

3. Are there activities you consider unclear?

Mole town. That's 8, 9, 10 I think. Um, then you have one day where you're looking at a 13, you know. One lesson where you're looking at a menu. For a low kid, again they're, running into troubles. Then we start one day where we deal with money. Or a, two lessons where we deal with money. You know, those, I think they're good. Good exercises. But I think for a low kid again it has to be something on-going a little more than just a bang, okay, two days we're gonna start thinking about subtracting money. Yeah, I'm saying this as compared to my kids. Another one that's very bad I wanna

mention, I wanna just talk about real quick is, 19. "Because the directions weren't clear, or . . .?" Well, when you hafta, you know, these kids make one error and they're done. You know that's, then they see their book and oh, my god! Gotta go all the way back and do it. "So it's not that it was unclear but it was . . . difficult, frustrating?" This can be very frustrating for them, where it, a low kid you want to give as much positive . . . you want it to be a kind of a positive type thing, you know, where they're getting confidence. That's where I am as far as you know, dealing with low kids. Whereas a high kid, you know, this is good, and I think any kind of variable you can throw in is great.

4. Are there activities that you consider superfluous? That you would leave out, that you think that are unnecessary or . . .?

Especially mole town. This is A-3 we're talking about? Moletown. And uh, . . . I don't wanna tell you, A-3, as compared to A-1 and A-2, I thought it was pretty good. For a low kid I think I'd leave out the patterns. For a high kid again I think it's good. I did leave out the patterns too, I left that as kind of a game type thing for them if they got three of them they'd get a treat or whatever.

5. Which activities did you find very difficult to teach, and which did you find easy?

Okay, um . . . mole town, again, that's one that was difficult to teach. The charts on page 16, the jumping contest, I took an extra day on that just to teach them how to use a chart and a graph. Which is nothing wrong with that. but again it's just bang, one lesson and it's gone. And I think, you know, that's something that could be on-going, could be of value. Cause I bet you right now, if I did show the kids a chart, there'd be a couple of them that, you know, it probably is gone already because it was a two-day deal. Another thing that I disagree with in the book is the greater than and less than. See again, my kids have a lot of trouble reading. When I'm teaching something like the sign greater than, less than, I think that's of value to them, they can see where it opens up to the biggest number. Instead of the reading, "The sign goes (unintelligible). . ." Yeah. But like I said, I am dealing with low kids. If I had a high group I'd, you know, have nothing but praise for most of these lessons.

6. Which activities did the students find easier, or difficult (unintelligible)?

Uh, difficult, again we might as well go back to Moletown, and I think the chart was kind of difficult for them. I think the menu was difficult for them. I believe that the sail page, number 14, was kind of difficult for them. I, uh, like I said, if I was given a week or a two week gig with the charts and graphs thing, that could have been turned in to be a real easy page for them. Or, concept for them. I think validating at first was hard for them but I think it's necessary. They worked hard on it and I think they have it. I think validating, you know, the first, for these kids validating was, oh my god, another math problem! Two in one, what a

bum deal! Whereas where they understood it was a real checking of the answer and what not, I think it turned into something of value for them. And, also, page 19 was kinda tough.

7. Is there material which the students should have covered before that they didn't?

Not really as far as math goes, just like in the map, reading a map, distances and, um, charts and graphs. You know, a lot of these kids probably, I'm sure of it, at least by what I saw of their work at the beginning, I'm sure haven't worked too much with charts--or graphs.

8. How did you choose which activities to use?

I looked it over a day or two in advance, or actually a week. I plan a week ahead, then you know if I sway from that it's no big deal, but I look a week ahead and if something looks a little too difficult, or something that looks that it may not be of a whole lot of value to them, I didn't use it. For instance the, when I say that I, really, most of it we went over. Cause I really do think this book has a lot of good concepts. And it just, a real creative way of presenting a lot of the concepts. But the patterns is one thing I decided wasn't necessary to teach them, not quite yet. But there's some kids that went ahead and worked on them which is good.

10. Did you add any activities?

Yeah, like I said I did the chart and graph thing. For instance, one day we did a class chart. Just to teach them how you use it, you compare things with it and where the subtraction problems come from and the addition problems. That's one example.

11. Is there anything else that you would like to add in general?

I think, you know, I've said it more than once I know that, looking at the topic it teaches, I like the way it introduces part-whole. I think that's good. I like the validating. I like what it teaches, but I just wish it would, you know, for instance if you're gonna go to the graph deal, do a little more with it, expand. For a low kid. Now again, for a high kid I think it's good. Real good, uh, booklet. I think it's a good unit. Even the middle kids. I have the extremely low kids and that's where it's . . .

Topic A-3 Teacher R School Z October 14, 1980

PLANNING

1. Do you plan alone, or with others?

The third year team, we plan as a whole group--for a broad overview, whether or not our kids are measuring up, whether some are falling behind. But on a day-to-day basis we plan for ourselves, because I have the top group and mine are going much faster than theirs, so I do my own planning. And, um, I plan, um, activity-by-activity and day-by-day, I think. "So, in other words, you kinda see how things go on one day before you." And then if they can do well on, then if the book doesn't have it I, like mine are having trouble with sentences. Open sentences. Then I make supplementary work.

3. Do you use resources other than topic materials?

Yes I do. I use things that I, like I go to Madison School Supply and get things. And we have math materials over her, math activity cards, and I have a lot of games that I use for faster workers. "And stuff you've used in other years of teaching?" In the other years.

4. Are there pupils for whom you plan specially?

Yes. Russell and Scott. "And why? Cause they're better, or weaker, or?" They're better. "Russell is really better, isn't he, yeah." And Scott is too. They're really amazing the way they can figure in their heads. "Uh-huh, yeah. So fast too. I'm struck by that." So I usually, um, they don't like it if you give them something that's really hard when they get finished, they want it to be a little bit fun. "Yeah. So what do you use--games and stuff like that for them?" There are a lot of games they use, and I get puzzle sheets and things like that. That they don't have to do a lot of, not a lot of the same thing they've been doing, because they know how to do that and so things that challenge them and make them think.

DIRECT INSTRUCTION

1. How do you decide how to group your students?

"Or do you, I suppose, the first question?" Are you talking about the, all of the third year or just my class? "Just your class, yeah." I don't, I introduce a lesson to everybody, and I set an outer limit that, that the faster ones can get to, but I set an inner limit where everybody could go to. So that the ones that can't work as fast aren't as frustrated. And then I give extra work to the ones that finish up. "I guess part of this question deals with something like, say in a given lesson it says to break up into small groups." We do. "Now, how would you do that? By kids who are friends . . .?" No, I don't. "Or do you do it by good readers with poor readers, or . . ." Well, all of the kids in this group are good readers, they all can handle it pretty well themselves. That isn't any problem. They all can work together. And, uh, I don't have to make any special arrangements, except for girls that like to get together and be

silly and giggle. They wouldn't accomplish anything. Then I have to split those things up. "That never happens, though." Oh, yeah. "Does your grouping change? In other words, from activity to activity, do you put different children to work with different children? I guess that's kinda what that means." Yes, on Thursdays we have game day. And I try to change it because if, usually they play on teams or something like that, and you find out that some of them are pretty fast, and that that group will always win, so you try to split it up so that, we use different things like numbering, and like that. So that you mix them up so they don't get all the same good ones on one team.

3. On what basis do you decide whether an activity should be seatwork, versus teacher directed?

Well that is a problem with these kids. They are so cocky, they think they can do everything. And, um, they really hit a snag on that last part of topic A-3 where they have to see number patterns. I made a transparency and I was gonna give them all help on it. And they said, well we know it. We know it. We don't need any help. And I said all right, then you go right ahead and do it by yourselves. Two of them, Russell and Scott, did it, just like that. Russell had a little trouble. And the rest of them are struggling, so I let 'em struggle for a day and, tomorrow I'm gonna give them some help because, they were so cocky they didn't need to listen before, now they, they know they need to.

4. How do you decide how much time to devote to a topic or an activity?

"Okay, this next one, dealing with allocation of time that you devote to a topic or an activity. Now this is kind of hard, since you haven't been through too many of these topics so far, but I think you can think about this in terms of your general teaching behavior, not only this year but in past years. How you . . . (unintelligible)." Well, if they're all getting it, then I just do what is barely, and then necessary. But if, when I check their work and there are quite a few of them that are having trouble then I usually do an extra teaching unit, I make games out, that they can play together, to, for drill. And I make out extra activity sheets to work on that. And the only problem they've had was the whole-part sentences.

5. What type of evaluation do you favor? Do you want them all to master the objectives, or . . .?

I think the high, the high group should. "And pretty much they do, I would guess." Yes, it's kind of fun. I went through the, I took their books on, to check brfore I wrote out their report cards. And it was really kind of fun to go through them ans see practically a perfect pages on all of them. "It must be a joy to teach those little characters." It is.

TOPIC INTERVIEW

1. How important do you feel topic A-3 is?

Very important. Because this is a very very basic skill that they have to have, with the regrouping.

2. Which activities in the topic do you feel most useful?

"Now, you can use the teacher's guide if you can't remember." I can remember. I think the activity that was really helpful, that drove it home to the kids, was the very first lesson where they used the objects and they had chips and they had sticks. And we spent a whole period doing--I did a lot more than what it said in the manual. And by the end of the period it had come home to every one of them. So the next day, all I had to do, I went to pictures, and we worked on the board with pictures, and then they went to the abstract numbers. And, a few of them still have a little bit of, they get mixed up once in awhile and, you know, when there's a 2 on the top and an 8 on the bottom to subtract, but, most of them have it pretty well. And I think that that was really an important thing.

3. Are there any activities that were unclear?

No, I don't think there were any that were unclear, but I do feel that there should, and I noticed the next one has more. These kids do have a weakness with story problems. And there should have been more story problems I think, because, um, the ones that are in it are good. And those boxes for whole and part really helped them a lot. But I've done a lot of extra work on that, and some of them are still having trouble, but I see the other book.

4. Are there any activities that you think were superfluous, unecessary, or . . .?

Yes, I think the end ones, for mine, these weren't necessary. All of this section was not necessary. It's pages 26 and 20 . . . uh, these right here. Now this one . . . "In other words they, they had it already by that time." They didn't need it. Okay, but this one was hard for them. "Yeah. Page 25." Because they don't understand about intersecting. And, it requires very careful reading. Most of them could get it down as far as 5, but 6 and 7 they didn't, it's pretty detailed reading and you have to go back and put your finger on it and they get impatient about that. I had to help with those.

5. Which activities do you find very complex to teach? Which did you find very simple for you, if you can remember?

I don't think for this group, any of them were complex. Other years, I know that this whole business of regrouping is pretty complex. And you spend practically a whole year and they still don't understand it. But the thing that they're still having trouble with is whole and part sentences, because quite a few kids are new in our system and hadn't, no background.

And they are quite sharp, but they are disadvantaged because they haven't, they don't understand that. The ones who have been with the program all along seem to be getting it pretty well. "Do you sense any difference between children you've got this year, and ones in past years, because this is a different approach . . .?" Very definitely I do. I've never had the third graders this far along. I've spent practically the whole year in other years just teaching them to regroup for adding and regroup for subtracting, and that's about as much as we did in whole and part sentences. This year I'd say they should get into multiplication.

6. How about activities that the children found easy or difficult?

One thing that they really enjoyed a lot was making graphs. Then working with groups and estimating. Now that is, uh, and most of them understand about estimating, but when you, when it comes right down to checking you. Did the answer you have seem reasonable? They don't do that. "Were there any activities that were hard for them, other than those couple pages you've mentioned to me?" No. The number patterns were about the only ones that bothered them.

7. Is there material your pupils should have covered before this topic which they didn't?

No, I don't think so. I think they were pretty well equipped to handle . . .

8. How did you choose which activities to use? Or did you use them all?

I used them all because, but I enriched them. Because I figure if you have the top group, you don't just zoom right through in a straight line, you find some things that challenge them and give them extra if they, more workup.

9. Did you change any of the activities?

Yes, I changed the estimating activity. So it would be things that were more concrete, because we don't have all those things, like we don't have chains and things like that that it says in it. So I used things we had in the room.

10. Did you add any activities of your own?

"And you said some drill and some enrichment." And a lot of extra, a lot of whole-part sentence things I added. "Now did you just get them from other books, or did you have . . .? No, it's from what I used other words. I can make flash cards, and make games and, and things like that.

11. Well that's it except for if you want to add anything else.

Well, I think the program is a big, big improvement over what it was. And I do hope that, it would be nice if they would keep on revising and, all the way up the line. Because it's sadly in need of it. Our kids are way

behind in math with kids from other schools and generally when they come in . . . "in this system, in the skills, you're talking about mainly?" In skills, yeah. "How about conceptual development, do you think they do okay in that?" I think that the old way where they drew pictures and went through writing big long sentences and everything, they say it's so they'll understand, but children who are slow don't understand, they get more and more confused. They, I really do think they need a straightforward approach to it, so that they, they should know that it's ones and it's tens, but drawing it all out like they did before, it took so long, and when you got finished they were more confused than they were when they started. "That's one of the reasons that we changed it. Okay, thanks."

Topic A-3 Teacher V School W

A. How do you feel about the topic and general things about the topic?

. . .

PLANNING

1. Do you usually plan alone or with other teachers?

Alone.

2. Do you plan day-by-day or activity-by-activity?

Usually it was a series of, like if two or three pages went together I would do those or I'd plan a couple of days or whatever it took to get through that. Sometimes it was day-by-day, depending on the activity.

3. Do you use other resources than the topic material?

I used a couple drill sheets to practice when they were having problems on borrowing. I'd give them a sheet to work on or I made a couple up just to practice.

4. Are the pupils for whom you planned special in a class or group?

Well, not really. When the aid corrected them she made notes and I made sure to just talk to those kids, but I didn't plan anything different for them. Everyone did the same thing.

DIRECT INSTRUCTION

1. In the group that you were working with, do you group the kids in any way?

No. The ones that finished their work early could do other things. They are usually in a group by themselves doing other things. But I don't plan it that way. It depends on how fast they work.

3. On what basis do you decide whether an activity should be seatwork or teacher directed?

Well, I think I usually introduce it and let them work and if they are having problems and if someone asks questions that I usually do most of the page together. They did most of it by themselves.

5. What type of evaluation of students do you favor, like "mastery for all" or . . . or "mastery?"

Well, I think that if a topic for mastery, I think they should be able to pass a test. Get half the test right, or three quarters of the test right, if they understand the concept of that, that you are testing for and that's what you're teaching.

4. How do you decide how much time to devote to a topic or activity?

That's hard, it depends on the kids and sometimes they caught on faster than I thought they were going to so I may have them do another page or something. It really depended on them and how sharp they were that day or how hard the concept was that I was trying to teach.

TOPIC INTERVIEW

1. About the topic itself, how important do you feel the overall topic is?

I think the things I've been teaching are very important. They will carry on to every math that you have to add and subtract and borrow and carry. I think they should know the processes are more important than getting the numbers right. I think it's very important to know that.

2. Which activities in the topic do you think were most useful?

I think maybe the kids got most out of the ones with stories with them, or there was something cute about it that they could color and they could do something else with it so it didn't really seem like math. They were more exicted about that and I think they didn't realize they were doing math when they were.

3. Are there activities you considered unclear?

Some of the teacher directions I didn't understand. "Can you be more specific?" The contest part I had a hard time with. I read over it and over it and I couldn't understand it. I asked someone how they did it and I did it that way. I just couldn't understand what they wanted. I think these last things are hard because they don't correlate with the topic. "Do you feel they are unclear or difficult for the kids to do them?" I think they are just difficult. I haven't done the games in here either, that were suggested, and I don't know if I'll have time to do it but I think they are too difficult for the kids to understand.

4. Were there activities that you felt were unnecessary or that you would leave out?

No, I don't think so. Well, one that a parent talked to me about was the estimating. And the kids had a real hard time with that and I'm sure they still don't know it. They just can't understand why you would want to

just guess at it and that is the complaint the parent had that this is math and math is exact and why are you guessing when you can figure out the right answer. I couldn't explain that, I just said that's what it says in the book that's what I'm doing. The kids didn't see any justification for doing that so they didn't get it. I don't think it is that important right now with this.

5. Which activities do you find very complex to teach and which do you find simple?

I didn't find any really hard to teach. I thought the kids were going to have problems with this whole and part and doing the charts but they didn't. They have had it before. They did a really good job with it. At the beginning when we were doing some graphing there were some questions but I think after we talked about it after awhile that wasn't too hard. That was a little hard to teach just because it's hard to explain why you put things on a graph. Other than that I think it was pretty easy to teach.

6. Are there things that were easy or very difficult for the kids?

I think the whole borrowing concept, either the kids got it or they didn't. There are maybe still two or three that still don't and that is hard for them and they just can't get into their brain yet. The kids that caught on right away did really well through the whole topic, they understood how to do it and didn't have any problem.

7. Is there material which your pupils should have covered before this unit which they hadn't?

I think the only problem is that they don't know facts as well as they should. They could have done more careful work if they knew their facts better. We worked on it and worked on it and worked on it, it's gonna sink when it is going to sink in.

8. How did you choose which activities to use?

I used most of it. I looked through it and tried to explain so they could do all of the activities except those at the end. I figured all the practice they could get was worthwhile.

9. Did you change any of the activities?

No. I don't think so, except maybe that context with the graphing. I did that a little differently.

10. Did you add any activities?

No, not if you aren't including the drill sheets and stuff like that. We did a little graphing that wasn't included just for practice. The graphing was just another activity we made to make it clear.

11. Is there anything else you'd like to say?

No. I don't think so. The kids did a really good job and it took me awhile to get used to this because I'm used to the other form. I really didn't have any real problems.

Topic A-4 Teacher N School Z November 12, 1980

1. How important do you feel that the whole topic is?

Well, it's so much like A-3, in that it is very important, they need to learn how to regroup, and I liked that they're getting into reading the story and deciding whether they should add or subtract. It isn't depending just on a picture any more. They have to read and then solve them. Of course with my kids, I have really good students, so reading is no problem to them. I've had some kids, figuring out the reading before they do the math would be a problem. And for some third year people.

2. Which activities in the topic do you feel most useful?

Um, any of the story problems. Any time they have to read a thing like ah, I have 76 crabs and you have 29, anything where they have to read and solve I think is very valuable. Instead of just the computation.

3. Are there activities that you would consider unclear?

Yeah. Some of the games in, I think it was D. Page 22 was very difficult for, you know, just reading the directions to understand, much less to explain it to a child. The games, you know, it was nice that you listed those, but, all the games the emphasis was on computation, whereas what, I know my kids are beyond computation right now. What they needed were games that would give them extra practice in deciding whether to add or subtract. (Inaudible)

4. Are there activities that you would consider superfluous?

There was one. The castle thing. Yeah it's, it's a cute idea. And the kids do like this, you know, they solve the problems, and they cut out the pieces and put on it, but it takes so long. "To cut, and . . ." Yeah. Cause I started up promptly, and maybe five got finished in that one period. And, any time you have to go for the next day, anyone that's got little pieces and you, they never got all the pieces back together again. So I would say, if you're gonna do that, either do all the problems on one day and cutting the next, or else, if they chose a much simpler picture without so many pieces to it.

5. Which activities do you find very complex to teach, and which do you find very simple?

Page 14 is complex, because they have to go up to the page for information, and bring it back, before they decide whether to add or subtract. Page 17 and 18 are tricky. They know what to do, if you write the problem 27 + blank = 43, they'd be able to solve it. But the set-up is very hard for a third-year child. That, you know, going across here, then you're going down, then you go across again, and you find a missing problem. I like the way it makes them think, it was good for that, but I would never let them do it by themselves again. It was just too frustrating for them.

6. Which activities did the pupils find easy, and which did they find a little difficult?

"You mentioned this one, and . . ." Okay, they found 17 and 18 very difficult. They liked page 20, we did that partly because (inaudible), but they liked it, it was just, they're sort of like riddles. They had that feeling that they were solving a mystery and they liked it. And it wasn't too hard for them. They enjoyed the page about the animals, I think part of it just appealed to them because they were animals. And because they were interesting ones. And, cause they were interesting ones. And they weren't just dogs and cats, they were animals that, some of the kids knew a little bit about, and were interested in reading about them. So they liked that. They liked, some of the children preferred page 10, I heard them talking, because it was more pictures. And those would be my children who found all the words just a little overwhelming at first. For most of my kids that isn't a problem, but like I say, five or six . . . appreciate a picture!

7. Is there material that your people should have covered before this topic which they didn't?

No, I didn't find that with this topic at all. They were fine.

8. How did you choose what activities to use?

I used all of them except on D, with the games. I ended up just making up my own games that suited our needs a little better.

9. Did you change any activities?

"You just said that you changed this one, did you change any other ones?" No, not really. I ended up doing most of 9, 8 and 9 with them. Because the problem was, they'd had practice in adding up three numbers at a time, and they probably could handle four, but you have five things going across there. And so rather than let them try it by themselves, I did page 8 with them, and part of 9. Um-hm, so they could checktheir work. What I found, I don't know if this is in answer to your question, it's just that I'm noticing it here, what I found was that sometimes the answers in my guide were different from what they had. "That's an interesting point. I'll have to check it out." You start to say to the kid, no, and in the end it turns out that they're right! Several of the children were missing pages, I know that that's more of just a physical thing, but, you know, the kids were missing pages in their books. Or one whole page, the top half was, it hasn't printed correctly. "In the children's book." Yeah. So they couldn't read the first one or part of the second on some papers.

10. You mentioned that you added a game, did you add any other activities?

I gave them a little review in writing sentences with, in my time with the story. I would say, I had some marbles, and my brother gave me 30 more, now I have 76. And they just wrote down the sentence. I thought they

needed more practice in writing a sentence. And they can take a look at it and say, okay, I'm gonna solve this by . . . such-and-such. So I just made that up and just did it on another page. I thought that was important to add.

11. Is there anything else that you would like to add or to say about the whole topic?

I've started doing E, which I'm enjoying it. I'm glad to see them getting into that, you know, three groups of four plus whatever. Because so often we start getting parents saying when are they gonna teach multiplication? And then we explain, well, they're learning it. It, it looks different. But it's the same idea. So I was glad to see that at this time of the year, start to appear.

Topic A-4 Teacher O School Z November 12, 1980

1. How important do you feel that the whole topic is?

I think it's important that the children should know story problems, and just the reviewing of the adding and subtracting. Story problems because they use so much, it's just kind of a daily thing. Daily idea. So I think it's a very important topic.

2. Which activities do you feel most useful?

Well, I think just the basic, ones that have just the basic skill problems, and the kind of, the page where it had--page 7--I thought it was very good where they had the plain, ending with three numbers, just kind of a general review of the addition. And then um, things like that. Just the basic. Mainly those pages. Okay?

3. Are there pages that you feel were unclear?

The one that we used the group, the one we had the most problem with was on page 17 and 18. Filling in the missing numbers. It kind of boggled the mind. I tried to explain the part-part-whole, but then at times that whole became a part and they were totally confused. "So you think that the setting on page 17 was just very difficult and very . . .?" It was difficult for the group to grasp what they were supposed to do. They didn't understand they were supposed to add, and then subtract and then, it was just, the idea was just complicated for them.

4. Are there activities that you consider superfluous?

Meaning what? "Like, uh, that you would leave out, that you wouldn't use? Did you think that they were unnecessary?" Well, I don't think they really were unnecessary. I think the one, it was this, kind of put in where they had to, the pattern work, but it kinda goes along with what they're doing, but, if you just use that one, any of them, you know, to be taken out. Maybe this, maybe the confusing page! I don't know, you know? It was good that there was adding and subtracting review, but the idea of it was . . . confusing.

5. Which activities do you find very complex to teach and which do you find very simple?

Well, that one there was complex. The one they . . . "You mean the one on page 17 was complex?" Yeah, it was complex to teach, yes. 17 and 18. And, um, I think that was probably the only one and then, no probably that and this, I think maybe just at times, just the general explaining of the story problems to them. I told them to look for an important word a word that's gonna tell them what to look for. And that took some extra planning and extra thinking through.

6. Which activities did the students find real easy or real difficult?

"You mentioned the . . ." Okay, the one they found real easy which they enjoyed to do, which was the geoboards. They enjoyed that, and another one that they, they enjoyed the one, it was 15 and 16, where they had to solve the problems and then put the castle together. It took them, some of them, a little longer to solve the problems, but they enjoyed, it was kind of different, they enjoyed doing that. And then, um, once they got the idea of 21 I think they enjoyed doing that, where they had to find 4-digit numbers, or, out of the four numbers, find 2-digit numbers too. They had to find that smallest difference between them. They kinda got into that. "Are there activities that they find difficult, besides the one that you mentioned with the, on page 17?" The first story problem, now, they kinda started out, they were kinda confusing to them on 2 and 3, and then, and we did 4 and 5 together, but then they kind of . . . they could do very simple ones but when the wording of things gets confusing for them, they're lost. They're lost on the wording and what else is going on. Other than, figuring out the addition and subtraction principle. "Would you say that it's just because of too much wording, or just because the problems themselves were difficult?" I, maybe a little, I don't . . . well, sometimes they had, well they got down the idea, as soon as you're comparing more or less, they know the answer, subtract. But it was just some of the wording in it, may be hard for them to follow, as on page 3, number 3, where it says they brought some, and then there was some left, and they had some, and then how many did they have to start with. I think when they have to go back and think through the whole problem. It gets them confused. But they know, they can read the last question and it says, how many all together. They know exactly what to do. "So it's not the problem itself that is more difficult than just, um, reading it through?" Um-hm. If they don't quite understand what they're, the principle or it, what they're supposed to do. It's kinda, they get lost in the things.

7. Is there material which your students should have covered before this topic which they didn't?

No, I don't think so. It's just, because it's just, this topic was just a review of the adding and subtracting and story problems. No. I don't think there was any.

8. How did you choose which activities to use?

Kind of went along at their speed, um, I did add a review sheet. I made up a review story problem sheet for them. Cause I felt they needed more. For that, and just kind of stayed at their pace, what they could do.

9. Did you change any of the activities?

Um, the last at the end, some played the game on page 22, otherwise they played regular, just math games in the room. That I had, and . . . no I don't think I changed . . . or added anything other than just, kind of review, and just more explanation than some of the topics they had to go through. I explained a little better.

10. And you mentioned the sheet that you added on problem solving? Did you add anything else besides that?

No, just, no. It was just the basic problem solving on that sheet there.

11. Is there anything else that you would like to add or, to say, about the whole topic?

No, no. One of the pages, page 4. The top of it. The first problem was not in their book. It did not come through, so, the first two lines was not in there. The last one was in there perfect, but the rest of it was kinda blurry so we did put it on the board and they wrote it in their book. Oh, on page, the charts on page 8 and 9 at times, they were confusing. In the aspect that they had to carry a two or a three into the tens columns. More than just the one, that was confusing to them at times cause they put, they would just put the answer 23 down and I said no. How can all those big numbers add up to the little number of 23 and then they realized what they did, but, so kinda that, but I'm sure they'll have more . . . review of that. On page 10, the problem was wrong! But we did solve it. "The work is wrong? The problem, problem 5 on page 10. The answer was wrong?" The answer was wrong. So. But that was, other than that, nothing much. I enjoyed teaching it, I'm now getting into this math! Because I mean it was a new program!

Topic A-4 Teacher P School W December 3, 1980

1. Over all the topic, uh, how important do you feel the topic is?

Up to Part E I thought it was pretty important, since a lot of the kids hadn't mastered the regrouping yet, and that was a chance for them to master that.

2. Which activities do you feel were most useful?

Probably the ones where you are doing the group, like page 7, where you're doing a . . . number of different problems where you had to add and subtract, the ones where you would have to alternate subtraction and addition. Some (unintelligible . . .). Right or like these kind. Where you were getting used to the whole part. And working on that like 15.

3. Are there activities that you would consider unclear?

Page 10. On page 10, I think they had labeled just the--how did that go? They had labeled some of the animals but not all of the animals. And that was confusing to the kids. They had labeled the animals, the ones that they would be using here, as they, for the answer. But they hadn't labeled all the animals. And that was confusing for the kids. That I thought was pretty unfair to them. And that made it to be more clear. Um, there's one more. I think it was unclear also, they were confused about that. Where it was . . . "On page 9?" And 8. Where you weren't supposed to put anything there, and they're used to doing tables where you did the whole thing." Right. Right. And so, we used that as a challenge exercise to see if they could do that. But that was unfair to them, since that wasn't part of the directions. "Fill in the corner over there." Right.

4. Are there activities that you would consider as superfluous, that you would leave out?

Um, on Part E, I felt that they kinda made a mistake. I would have arranged things a little bit differently. They had the stations right away, where you work on different stations, like three groups of something and, groups of five, and I think we should have done some pages in the book, where they could see it, before they went into the different stations. I, I guess I would have rearranged that a little bit differently. If I had it to do over. "Are you saying that you would leave out, that you would just go with this one, just . . . okay." No, no. I'd just rearrange . . . the order.

5. Which activities did you find very complex to teach, and which did you find simple?

This, I felt was very complex to teach on the charts, because you had to . . . "Page 9?" Right. You had to go through the charts first on how to read a chart, cause some of the kids had forgotten. Before we could do any of the adding up. And, that was kinda complex for us. Um, I felt page 21 was very

complex. At least for my group it was. It was very complex. And, the kids had, we did page 19 together, because that one was very complex for the kids. Especially the challenge exercises. And the most difficult was the magic squares. They had a lot of trouble with it. A lot. But that was, you know, like I said in my group. "Is it because it was unclear what you have to do?" Um-hm. Um, I think it would have helped, if they had started with, and that's what we did later, start with simpler numbers to begin. With one digit numbers. And then after that, just be, so that they had a background, more of a background in the magic squares, then go to the 2-digit numbers.

6. Which activities did you find, did students find easier? And which did they find very difficult?

They loved 15 and 16. They really enjoyed that one a lot. Um, some of the, these pages 12 and 13 on story problems, they really liked those a lot and they found those pretty easy. Um, let's see if there was any others. They found the first couple of pages here pretty easy also. Like 2 and 3. Um, the only other things that I would mention would be that, first you're labeling with words, and I realize the reason why they wanted to label with symbols was so that they wouldn't have to write out the word. But that was sometimes confusing for the kids. "Was it difficult to do them, or it was just didn't know what to do . . .?" It was just that, I guess these kids they, they still are being spoon-fed a little bit, and they're not, first they tell, you know, label your answers bugs, and then label your answers, and they didn't know whether to label them with a symbol, like they had here, or the word. And I guess maybe they shoulda maybe . . . "Give better directions?" Yeah. Clarification there. "Um, did they find some of the activities difficult?" Um-hm. The magic squares I just said to you. It was very difficult and I, I, they had some, a lot of trouble with this. Cause you had a series of numbers and if you made a, one mistake, you know, that threw the whole thing off.

7. Is there material that the students should cover before the topic that they didn't?

Um, like I said that magic square, I think they should start with a real simple one, to start out with. The story problems the kids got fairly well, so I don't think there needs to be any more background work. I guess that would be the only one I can think of. That they need more background with.

8. How did you choose what activities to use?

Well, like I told you before, type of the day makes a big difference for the kids. And um, the ones that I felt were going to be too challenging for the kids so that they were gonna get frustrated, we left out. I felt that looking through this beforehand, this page was going to be . . . "Page 31." Uh-huh. Way too challenging for these kids. They would get real frustrated. So I left that one out. I also left this out--page 22. Cause I thought that that was a little bit more than what we needed, in my room.

9. Besides that, did you change any of the activities, that you did differently?

Differently? "Did you change any of the activities?" There's pages, like 19, which we did together, because I thought they would be struggling too hard, but that's . . . I changed the magic squares. We started working on the magic squares and then decided that they were really struggling with it, so then we went back to some simple, real simple, 1-digit, simple ones, and then came back to that.

10. Did you add any activities?

We added the simple magic squares, and then, just plain old basic math facts. Sheets that we added, too.

11. Is there anything else that you would like to add about the whole topic or in general?

Can't think of anything offhand. I guess I said all I needed to say.

Topic A-4 Teacher Q School W December 3, 1980

A. How far have you got in A-4?

A-4, we're, well I have a student teacher now doing some of the work and I do believe, I was in there Tuesday and I, I think 14 they're working on right now.

1. In general, what do you think, how important is this topic?

Let me look through it quick, I didn't teach it! I'd say for a . . . as far as the importance of the topic I think it's a very important topic because now it's, seems to be, it's now not straight subtraction or straight addition, it's mixing it up which I think is good. I think it's very important. I think a, my kids it's a little difficult because there's a lot of reading, you know that's unfortunate, something they're going to have to have to deal with. So, you know, for my kids that is kinda tough. "Do you feel that you would like to talk about specific activities?" I can up to 14.

2. Which activities did you find very useful?

Very useful. I've found, um, I think for my kids the story problems with the pictures is not bad, I think it's good. For them it's just motivational (inaudible). I don't think there is a lot of reading but I think if, you know, the fact that, when they see reading, I think a lot of them kind of are scared. Cause they aren't real comfortable with reading. But the reading isn't really that hard. I think that one that was, one activity I know that we did that was good way, I thought it was good, was the charts, even though I did have to take some time to explain the chart. I thought that was good to do the . . . I'm talking about 8 and 9, the store sale, the pet store and the library. I think that's good for them. Only thing is, it's just I had to, you know I tend to take it, 15 - 20 minutes to explain, how you read the chart and what-not. But I mean it wasn't just a one-shot deal, at least there's two pages to it, and there are a number of (inaudible) you could add stuff.

4. Are there activities that you would consider superfluous, that you could leave out?

Well, thus far, no. Maybe the geoboard. But I, see I didn't teach the geoboard when I was in here. Looked like they're enjoying it, so, I really couldn't say anything about that.

5. (Which activities do you find very complex to teach? Which did you find very simple for you?)

"You mentioned that 8 was complex to explain." It was. "Are there other activities that were complex to teach?" This (unintelligible) words, is kind of a challenge for them but I think there's enough pages in here so that they were starting to gain confidence. They're starting to look for key words. You can tell 'em, you know, what to do with those numbers in the paragraph. For instance, how many more tells them it's time to sub-

tract. You know, they're starting to see the key words now. I guess the more they do the, you know, the easier they feel with it.

7. Do you think that the materials should cover other material that they didn't? That should be covered before?

No. I wish they would have went on a little bit more with the 684, does follow A-3, I wish they would've went on a little more with the whole-part type deal. I think that little chart that they give with the square that's divided into three boxes, I don't know if that's a good idea and I wish they woulda stuck with it a little longer.

9, 10. Did you change any activities? Did you add any activities?

The pages that I did, no. I didn't except we did an example of a chart on the board together.

11. Is there anything else that you would like to add about this topic?

Oh, not so far. Like I said I haven't . . . taught a whole lot of it.

Topic A-4 Teacher R School W December 3, 1980

1. How important do you feel the overall topic is?

I think that story problems are very important. But I don't feel that they had a chance to analyze them enough. They, um, the directions say to just write it in a compact form. And I find that kids don't read the story then. They look and they see two numbers. And if they will add these, they'll subtract these. The old book seems to say you had to write a sentence in the order that the story happened. And that way they had to analyze it first. And I made them do that, which they didn't like very much. But I had the top group and they were capable of doing it. And it gets back to this business of whole and part, and whole and part is a really hard thing for kids to do. And this . . . "Even still with them, it is?" No, the majority of the kids in the top group can do it. But the ones who are new to the system especially, there are four, are still having a big struggle with it.

2. Which activities in the topic do you feel most useful?

"I don't think we need to go through all too, . . ." I don't think, as far as activities, I don't think there were too many activities in this one. The story problems and the games, and . . . "No, activities means, activity 1, or activity 2." Oh. Well I, the story problem part is the most important. Least are, just plain doing the sums and differences. All of the kids in the top group understood that perfectly, it was just redundant. This was not necessary at all as far as they were concerned. This activity was important, the labeling. This is something they hadn't done before. But I do think they should write out sentences.

3. Are there activities you consider unclear?

Do you want to talk about this last part, here? They had a lot of difficulty with these magic squares. And um, right now, . . . "Now don't worry about the grouping and partitioning stuff, because this is really dealing with addition." That's what I'm talking about, we won't talk about that. "We won't talk about that, no." The, the only thing that they had a lot of trouble with was the magic squares. "Okay. Just the way, they didn't understand the format, or . . .?" They're still not going back to the thing that if you have two parts, you add them. And if you have, I mean it goes back to that basic thing.

4. Are there any activities you consider superfluous? Unnecessary, or?

Yes. I don't think we need any, need too many, I know for other children, they do need these papers, but these papers are just plain figuring out facts. The top group doesn't need that.

5. Which activities do you find very complex to teach? Which ones very simple to teach?

I didn't find any of these complex. They were not, there was no problem at all in teaching any of these things to the top group. "I mean, for

you to prepare or anything like that? Any problems?" I usually do a lot of extra things. And, um, try to give them concrete objects to work with and so forth. To introduce it. Um, but no. There was no, the only thing that I was asking of them was that they, um, write a sentence. And that, and analyze the problem, and they still don't do that. "Well, a vertical is a sentence of a sort, I guess, but uh . . ." But the old books used to say in the order it happened, like if it says when they hear the clue word, sum a box. And they think of, what's the whole thing and what are the parts of it. So they don't go heading, if they have a 48 and a 26, they don't add them. Just because they see the two numbers there. "Sometimes they get a clue that the smaller number comes first, then they know they're supposed to add, if the bigger one comes first, then . . .! And sometimes they don't have that help." Um-hm.

6. What activities did the pupils find easy, and which ones did they find difficult?

They didn't seem to have any trouble with any of them except the magic squares.

7. Is there material which your pupils should have covered before this topic which they didn't?

No.

8. How did you choose which activities to use? Or did you use them all?

Um, I used them all, because they could do so many in the day, that like they, every time we came to a new activity, I just had to introduce it and then they just worked right ahead and finished it in a day. So I did a lot of extra things besides.

9. Did you change any of the activities in here, other than this?

Yes. I did that. Um-hm. "Why?" Because I want them to read and analyze a problem and get this whole and part business better.

10. Did you add any activities, well we (inaudible . . .) some of the stuff you said you did?

11. Is there anything else you want to say?

I don't know, I think that, um, these books seem to have simplified it. So that the majority of kids who were having a big struggle with the others are able to get it, I hink. And, perhaps writing it in the vertical position is the way to do it. For the majority of kids. But I think for bright ones, there should be more challenge. This isn't challenging enough. "Okay. Yeah, well you just get through quickly and run on to something else I suppose." Um-hm. "Yeah, what we had done in this whole series was try to get at the, . . ." The middle. "analyzing business earlier. You know, with the things that you used to teach out of topic 43 was really the first place where we got into that part-part-whole kind of analyzing, and

we felt that probably, you know, a little too abrupt, or which some of the teachers told us was, for certain children it was kinda hard, so we've been trying to do it all along." Well that form, where you make the little box, that is a big help. I had that man in my room, but I mean nobody else did and they, it was really hard if they couldn't see that it was like and some kids still can't see that if you have one piece in the whole thing that you're gonna subtract to find the other. Because they don't reason. That's one of the big problems. They don't, they don't analyze their work to see if it makes snese. They get an answer down. "Well, do they have that analytic ability to, I mean, in general, and let alone just mathematics? Do you think they, they have ability to reason, and to . . .?" It depends upon their level of intelligence. Some of them are very, it's really amazing to watch, I was really amazed when I watched them do this part here. Where they had the five, where they had 3 and they had 25. How some of them went about doing it. I put chips on the table. So that they, if they wanted to use the chips they could. But some of them made pencil marks, and the same way with these. When they had to split these up into groups. That many. Some of them went and got chips. And they would put them out, then they would split to find out. Some of them numbered them, and they real different ways of doing it. "That's challenging, I guess, isn't it?" Uh-huh.

Topic A-4 Teacher V School W

1. How important do you feel the overall topic is?

Well, I think it is good as a review. I don't think it was hard for them after the last one they did because that was basically you know teaching them and they went through all the things pretty quickly. "In A-4?" Yeah. The things that had to do, you know, with what was tested in A-4. The adding and subtracting wasn't hard, that part, it was no problem. "You say, you think they have the mechanical skills they need to . . ." Yeah, to have a review, to some exposure to it again. But, they did well on it. "How about solving the story problems and that sort of stuff?" They were getting pretty good at that--reading them, I think they get the technique down. "Yeah, there's just so many different kinds." Yeah. They want to do all of them the same way, that's the only problem. "You mean all add, or?" Well, you know, they see two numbers and they want to do the same thing that they did in the last problem with them. So that takes a little practice. "Do you think that now they get into a routine that now they start thinking less--do you think that's a possibility?" Yeah, I think they try and do that. "Yeah." You know, they try to make it fit what they think it's supposed to be rather than looking at it and making it the problem that it is.

2. Which activities in the topic do you feel most useful?

Okay, now we're going to talk about the specific activities, I think there were only four of them, weren't there, A, B, C, and D--so that's what we mean by activities here. Which ones do you feel are most useful? Well, I think that just the story problems and that sort of thing were good for the review--that's what the topic was about. The games and things like that I think were a little hard, we did a lot of those together and some of them we skipped. I don't think they saw what they were doing. They thought it was a game and would be easy but it wasn't as easy as they thought it was going to be. "If it's not easy it's not fun?" Right. And I think those were hard. I think the basic review was very good. "There was some stuff in there in three and four numbers and stuff like that?" Um-um. The geoboards was one thing and we spent more time on geoboards because they really got excited about that and so we spent a couple days on that. "Chances are they haven't seen it for awhile." That really didn't have a lot to do with the topic; but, since that was presented it was another way for them to add and they really liked that.

3. Are there activities you consider unclear?

Well, I think the games and the puzzle parts. I had a hard time trying to figure out. Magic squares were hard. We spent a couple other days on those too, because the kids didn't get them, some of them still didn't. But we all did a couple extra worksheets on those. "Kind of a different way of presenting the same old stuff, making it a little bit less bitter to swallow, I guess." Yeah, and they either got it or they didn't. They

either saw how that worked or they just didn't have any idea what they were doing. "Well, those kinds of things appear in other textbooks, too." Um-um. "Maybe not in such big numbers, but those things work also for multiplication, too, except that gets pretty hard to keep the numbers small, the last number gets to be pretty big down at the bottom." Um-um.

4. Are there any activities you consider superfluous?

Well, I don't think so. There's, like the things I felt that didn't necessarily teach--like the magic squares and the geoboards--I think that they got to be extra activities that happened to fit in. But for just teaching adding and subtracting I think that just the review pages were the best for doing that. "I think that's the reason for including the variety." Variety, yeah, that's true and I would have done some other things, too. "If they weren't there." Yeah. I would have done something.

5. Were any of the activities hard to teach? Or too simple?

I thought they were okay. The kids didn't have a hard time with the adding and subtracting part. And I really didn't teach. I said, here's three pages, do them and in 10 minutes they were done. "Great. And they're getting them right?" Yes. "Do you think that waiting for third grade makes a difference? The kids are more mature or more ready for it than some programs they have in second grade?" I think they were ready for it now In the beginning, when we first started teaching borrowing, they had lots of problems, but that's anything new they're going to have problems with. But I think they get it now. And they're really eager to do new things. They're so excited to multiply and different things like that. And now the lead teachers tell us, don't teach them how to multiply. "Oh, really?" Yeah. Cause we're doing the last part of A-4 with the grouping and partitioning and I said, this is the first step to multiplying and they're all cheering and then the fourth grade teachers say, don't go on with that, they're not ready and it's too hard. But, they're so excited I would think that would be the time to start it. "To capitalize on the excitement. I think so. In fact, some of the drill sheets we included in the dittoes are simple combinations which come early on in the textbook. The 2s and the 5s and some of those things. It doesn't hurt to have the kids know those." No, I don't think so either.

6. Which activities did the children find easy or hard?

Well, that's basically what I said. "They get most of it." Yeah. The magic squares they have problems with. I think that's about it. "That's probably unfamiliarity with the format." It wasn't the numbers that were the problem. "If we had done that earlier with simpler numbers they probably would have." Yeah. It's the concept they don't get, not really the numbers. "They've got the ability, it's just what they're being asked for." Uh-um.

7. Is there any material which the children should have covered before this topic which they did not?

"Were they ready for it?" Yeah, I think they were. From the last topic they had enough. "Do they have any problem with adding more than two numbers?" At the beginning we had a little in the arrangement. They were putting the 10s in the 1s column. Once we lined up the numbers we didn't have too much problem with getting the answers.

8. How did you choose which activities to use?

"It doesn't make sense, if you used them all then you didn't make a choice?" Well, some of the games and the puzzle things we didn't do just because I didn't think I could present it to them in a way that they could understand it. "Okay."

9. Did you change any of the activities?

"I mean the basic format suggested or routines?" No, I don't think I changed anything that was there. I added, you know we did some extra things. "Oh, yeah." But, that's the next question.

10. Why did you add?

Because I didn't think there was enough. Well, one was the geoboard things--we spent a couple of days just working with the geoboards because they liked it and I thought rather than here and take this away I'd give them a little practice at that. And the magic squares, we did some extra things because I didn't think they understood it well enough. But that's the only thing I changed or added. Most of it I did what was there.

11. Anything else you want to say?

"Last chance. This is your first time teaching DMP, isn't it?" Well, when I was interning I interned at McFarland so I worked with it there. "Oh, you did. What grade level?" Second. "You're not using these topics, thought?" They weren't. "They still are not." I don't know. I wonder about having all the different activities--you know, like in the end of this talking about this grouping and partitioning. That seems to me like it should be something on its own, rather than just a little taste of this. And I don't know, I'm not sure of what is going to come next with it. "That's an organizational sort of thing--kinda of review and kind of getting ready for Topic 47 when it occurs." I think that's the one that the fourth grade teacher said they didn't want us to teach. Is that the one that starts multiplication? "Well, it does but it doesn't use the multiplication symbols. It still uses the grouping." I think that was the one we were talking about. But I think the basic topic was fine. I think they really understand it now. If they are making mistakes now it's because

they are careless, not that they don't know how to do it. "You still get a few who take the top number from the bottom." Yeah. And I'll say, look at this and they'll say, oh no. They know. And that's the important thing, that they really know the concept. "And I always, well it's not quite the same, but kids who reverse the numerals when they write." Yeah. "They can read them correctly, you find a few adults who do it, they get over it." I have one that makes every single 3 backwards and I'll say look at that, backwards. But when she writes it. "She processes it mentally." Yeah, she knows it, it's a 3 and when she looks at it she knows it backwards. "Well, it actually turns out that most test data show that this kind of addition and subtraction sometimes kids are in fourth grade and have the practice--95% right down the line and I dare say that when you get to teaching 3-digit addition, it will take you about three days." Um-um. "You know, the transfer is there." Yeah. "In fact, with the regrouping we could do it now." Oh, I'm sure they could and they like big numbers too--they're fun to work with. Big numbers, because that's hard. "Well, they're looking for status and being big kids and multiplication is that sort of thing." Um-um. "Well, somebody has to transcribe this . . ."

ASSOCIATED FACULTY

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Curriculum and Instruction

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Law

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Child and Family Studies

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English and Linguistics

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Educational Psychology